NEW BOOKLETS AND LEAFLETS

Direct Advertising of manufacturers received recently.

Alaska

The Alaska Refrigerator Co., Muskegon, Mich., has sent in a folder announcing six new color combinations for porcelain exterior cabinets. Standard colors are white walls, top and doors, with gray, blue or green front. Special colors are ivory walls, top and doors, with gray, blue or green front.

Femcold

The Fessler Manufacturing Co., Kansas City, Mo., has sent in a folder containing illustrations and specifications of Femcold unit control electric refrigerators. Three models, model "B" bungalow size, model average home size and model "C" large home size are featured in the folder. Model "B" has a single door, interior baked enamel, porcelain bottom and lac-quer exterior. Models "C" and "B" are porcelain interior and exterior. Specifications of the compressor with unit control are given.

SUGGESTS SOURCES OF INFORMATION ON USE OF METHYLENE CHLORIDE

The following has been received from the following has been received from the Carrier Engineering Corp, 750 Frel-inghuysen Ave., Newark, N. J., replying to query No. 104 requesting information on the use of methylene chloride as a refrigerant:

"The use of methylene chloride in the refrigerating field is new. It is particularly adapted to centrifugal compression systems, which require large volumes at low pressure differences. The best available physical properties data is given in the International Critical Tables, this is given in volume No. 1 on page 176 and in volume No. 3 on page 148 and 215.

"The use of methylene chloride as a re-frigerant is mentioned in the paper 'Re-frigeration as Applied to Air Condition-ing' presented by the writer (R. W. Waterfall) before the American Society of Heating and Ventilating Engineers, June 28, 1928. This will no doubt appear in an early issue of the American Society of Heating and Ventilating Engineers' Journal. Methylene chloride in the article is spoken of as carrene.

URGES MEN TO PUSH "SEDAN" MODELS IN FAMILIES OVER FOUR

"The Refrigeration industry is experiencing the 'roadster' popularity of the automobile," stated P. B. Zimmerman, sales manager, Electric Refrigeration department of the General Electric Co. at a conference of wholesale managers recently held at the Cleveland office.

Mr. Zimmerman stated that in the old days of the automobile everybody bought a roadster because they wanted a car, but didn't feel it necessary to invest more money in a larger model. They were proud to own a car, regardless of the size or make, and it took much missionary work to educate the public to the fact that a roadster was not adequate for a family of four or five, and that a sedan would much better answer the transportation problem of the larger family.

"So it is with the refrigeration industry," stated Mr. Zimmerman. "Everyone feels that they must have an electric refrig-erator, but any small model will do. They do not give much thought to whether or purchase of a Welsbach low-pressure renot it will adequately store the family's frigerator. Five arguments are accentusupply of food, whether it will be a con-ated in the series, namely: small downvenience meaning fewer trips to market, payment, balance in eighteen months, inand quantity buying at an economy of stallation free, special trial offer, and a cost.

Electric Refrigeration Solves the Problem of the Small Dealer in Frozen Fish



The attitude of business toward the economy and efficiency of electric refrigeration was shown recently when the McCrary Produce Co. of San Antonio, Tex., purchased ten model R-7 General Electric refrigerators to be loaned to their dealers in San Antonio. The McCrary Company is distributor for Nordic fillet of haddock in the southwest, and their purpose in furnishing these units to their dealers is to provide a clean and efficient container for this food, separate from other edibles, and one which could provide an unusually low temperature at all times. Each refrigerator is equipped with a DR-3 unit and special mechanism to provide low temperature. It is planned to distribute other units as soon as the necessary arrangements can be made.

REQUESTS FOR INFORMATION

The following inquiries have been received by Electric Refrigeration News. Readers who can supply information on these subjects are invited to write at once, referring to the Query number.

Wants Quantitative Data on Adsorptive Action of Silica Gel

"Kindly advise us if any past issues are available besides that of March 28 which we have, giving specific data on refrigeration with silica Can you tell us where silica gel is obtainable and where we can secure quantitative data on its adsorbtive action with various gases." -W. T. D., Milwaukee.

The Davison Chemical Co., Baltimore, Md. has published a booklet describing the properties of silica gel and its various applications. If you will write them direct we believe they will be glad to supply you with a copy as well as a sample of silica gel and any other information which you desire.

Listed below are the titles of articles which have appeared on silica gel, in Electric Refrigeration News together with the dates of their appearance. Copies of each of the issues listed tre still available.

"Refrigeration by silica gel process to be narketed." February 15, 1928. P. 3. "Silica gel—The new adsorber, what it is and ow it works." March 28, 1928. P. 25. "Detroit engineers hear explanation of silica gel units." April 25, 1928. P. 1.

"Copeland organizes subsidiary to handle silica gel." May 23, 1928. P. 11. "Silica gel crystals apply principle of capillary attraction." June 6, 1928. P. 21.

Report on silica gel by E. B. Miller at A. S. R. E. meeting, Detroit, June 4-7. June 20, 1928. P. 6.

WELSBACH ISSUES SERIES OF "PROPOSITIONAL ADVERTISEMENTS"

The Welsbach Co., of Gloucester, N. J. has issued a special bulletin to all distrib-utors and dealers outlining the use of a series of fifteen "propositional advertise-ments" which have been made up and tested by the company. Each advertise-ment makes "a proposition" to the prosliberal allowance on the old ice box.

Subscription Order

Increased rates effective Sept. 12, 1928 ELECTRIC REFRIGERATION NEWS, 554 MACCABEES BUILDING, DETROIT, MICH.

Please enter n	ny	subscription	to	Electric	Refnigera-
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United States and Possessions:

\$1.50	per	vear.	П	Three	vears	for	\$3.00
WI.50	Per	y car.		1 111 00	Jeans		40.00

other	Countries:			

☐ Two years for \$3.00. □ \$1.75 per year.

I	am	enclosing	pay	ment	in	the	form	of	
					_			_	

D Check D P O Order

CHECK	1. 0.	Order	Cubii

Street Address.

City and State...

Remarks:

RECENT APPOINTMENTS BY THE WELSBACH CO.

The following additions to the distributing organization of the Welsbach Co., refrigeration division, Gloucester City, N. J.

are announced: Distributors: Globe Furniture Co., Robinson Music Co., Chillicothe, Ohio. Steubenville, Ohio. Huey & Philip Hdwe. Co., Dallas, Texas.

Associate dealers under distributors Harry G. Beck & John W. A. Ficken, 404 South Centre St., Pottsville, Pa.

Display dealers under branches: Bailey Company, Ontario & Prospect Sts., Cleveland, Ohio. Radio Service Studio, Inc., 1721 Connecticut Ave. N. W., Washington, D. C. Tran Stove & Repair Co., Cleveland, Ohio. Mr. W. N. Thomas, 6986 Wisconsin Ave., Bethesda, Md.

DEALER ANNOUNCEMENTS BY BENJAMIN ELECTRIC

Benjamin Electric Mfg. Co., 128 So. Sangamon St., Chicago, announces the appointment of the following distributors to handle the complete line of Benjamin Crysteel all-porcelain refrigerator cabinets:

Galion Electric & Luggage Store, 133 Harding Way E., Galion, O.
Schlafer Hardware Co., 115 W. College Avenue, Appleton, Wis.
The Bishoff & Brooks Elec. Co., 288 Asylum Street, Hartford, Conn.
Conant Carbon Co., Fidelity Bldg., Portland, Maine.

Braintree Elec. Light Dept., E. Braintree,

Braintree Elec. Light Debt., E. Braintree, Mass.

Adolph C. Goller, Jr., Egg Harbor, N. J.
T. W. Cheshire, Inc., 521 S. State Street, Syracuse, N. Y.
Brayton & Co., 207 John Street, Utica, N. Y.
Conrad & McLean, 6-8 N. Fourth Street, Reading, Pa.
Jaco Electric Co., Morgantown and Church St., Uniontown, Pa.
Old Dominion Coal Iron and Coke Co., 807-9
Boxley Bldg., Roanoke, Va.
Arnold M. Bauer, 44 S. Laurel Street, Bridgeton, N. J.
J. L. Cook Hardware Co., 1045 Fourth Ave., Huntington, W. Va.
C. Walter Dawson, 110 W. Drexel Street, Lansdowne, Pa.
Hill Electric Co., 518 N. Main Street, Bethle-

Hill Electric Co., 518 N. Main Street, Bethle-

Pa. V. Jones, 106 E. Second Street, Davenee Electric Shops, 159 Broad Street, Pro

Merchant & Evans, 2035 Washington Blvd., Philadelphia, Pa. National E. & A. Supply Co., 106 S. Washington St., Peoria. III. R. S. Proudfit Co., 143 S. Tenth St., Lincoln. Net. Welsbach Co., 413 U. G. I. Bldg., Phila-lphia, Pa.

delphia, Pa.

Jere Woodring & Co., 200 W. Broad Street, Hazelton, Pa.
Davenport Electric Contr. Co., B20 Harrison

St. Davenport, Iowa.

Duesman Furniture Co., Humphrey, Nebr.
Electrical Specialties, Inc., Atlas Life Bldg.,
Tulsa. Okla. Tulsa, Okla.

Illinois Power & Light Co., Jecksonville, Ill
The Korsmeyer Co., 412 S. Ninth St., Lincoln, Nebr.
Kerschner Motor Parts Co., 76 N. Main
Street, Wilkes Barre, Pa.

The following distributors will handle only apartment house models:

only apartment house models:

Edw. W. Eberling & Co.. Inc., 1532 St. Charles Ave., New Orleans, La.

Baltimore Copeland Refr. Co., Inc., 340 N. Charles St., Baltimore, Md.

Beaudette & Graham Co., 915 Boylston St..

Boston, Mass.

Copeland Co. of Charleston, 12 Virginia St., Charleston. W. Va.

H. E. Goodling Elec. Co., 344 Market St., York, Pa.

Hagen Furniture Home, 942 E. Holman Ave., Harmmond, Ind.

Kirkwood & Wharton Co., 456 Main Ave., San Antonio, Texas.

McKean Co., 5927 Baum Blvd., Pittsburgh, Pa. Pa.
Montgomery & Crawford, Spartansburgh, East End Cycle Co., 1741 Central Ave., Mid East End dieton, O.
Evans Elec. Co., 29 W. Orange Street, Lancaster, Pa.
Great Western Appliance Co., Kansas City,

Mo.
Good Housekeeping Shop, Kingston Theater Bldg., Kingston, Pa.
Charles A. Honold Co., Sheboygan, Wis.

"PLEASE CHANGE MY ADDRESS"

Recent movements of Electric Refrig-eration News subscribers as indicated by requests for changes in mailing addresses.

Adams, R. T. from 130 S. Arthur, Twin Falls, Idaho to 1427 9th Ave., Greeley, Ohio. Barnum, M. C. from 120 So. 9th St., Minneapolis, Minn., to Room 766, Builders' Exchange Bldg., 228 No. LaSalle St., Chicago, Ill. Bauer, August A. from 1318 N. Orange Grove Ave., Hollywood, Calif. to 2300 Warring St., Berkeley, Calif. Bishop, Mrs. J. O. from 240 Main St. to

Bishop, Mrs. J. O. from 240 Main St. to 215 Bay St., Ocean Park, Calif. Bradshaw, B. O. from 120 Mountain Ave., Roanoke, Va., care Charlotte Hotel, Charlotte,

Brandon, B. A. from 492 Peachtree St. to 133 Fairlie St., Atlanta, Ga.

Fairlie St., Atlanta, Ga.

Brumbaugh, L. A. from 305 Oak Grove St., to 2117 Kenwood Parkway, Minneapolis, Minn.

Corliss, F. M. from 217 Brandywine Ave., ichenectady, N. Y. to 2051 Abbington Rd., Schenectady, N. Cleveland, Ohio.

Clark, Louis from 114 N. Breed St., Los Angeles, Calif., to 55 Navy St., Ocean Park, Calif.

Calif.

Drummond, Harry M. from 2131 J. St. to 1401
K. St., Sacramento, Calif.

Eckler, Earl from 147 Millbank St. to 563
Laurelton Rd., Rochester, N. Y.

Edgar, Jas. A. from 4845 Swiss St., Dallas, Texas to 214 N. 4th St., St. Louis, Mo. Evans, Frank from 202 Chestnut St., Kearny, N. J. to 1825 Brierwood Terrace, Belmar, N. J.

Fuller, Walter from 11 W. 29th St., to 3309 Liberty Heights Ave., Baltimore, Md. Funck, L. V. from 415 Perkins St. to care of Frigidaire Corp., 1962 Broadway, Oakland,

Haviland, J. from 225 N. Michigan Ave., Chicago, Ill. to 250 E. Grand Blvd., Detroit, Michigan

Michigan
Hawley, J. H. from Kelvinator Sales Co.,
Inc., 320 W. Forsyth St., Jacksonville, Fla. to
616 Barret Ave., Louisville, Ky.
Heyse, Geo. from 911 Astor St. to T. M. E.
R. & L. Co., 833 Weil St., Milwaukee, Wis.
Hibbard, S. B. from 644 Everett St., Portland, Oregon to care Los Angeles Ice Machine
Co., 3427 So. Main St., Los Angeles, Calif.

Kennedy, March From Pai Urellon Hause.

Co., 3427 So. Main St., Los Angeles, Calif.

Kennedy, Maron from Psi Upsilon House,
Middletown, Conn. to Yorkco Club, York, Pa.

Legg, Edward R. from 209 Third Ave. So.,
to 1910 Boren Ave., Seattle, Wash.

McDonald, Jas. M. from 4252 No. Spalding
Ave. to care of Iron Mountain Co., 939 E. 95th
St., Chicago, Ill.

Molyneux, H. M. from 1109 East 2nd South
Sts. to 645 East 2nd South St., Salt Lake
City, Utah.

City, Utah.

Phillips, J. G. from Campbell Refrigeration
Co., 127 Washington Blvd., Los Angeles, Calif.
to 231 California St., Huntington Park, Calif.
Pierce, F. R. from 5619 N. 12th St., Philadelphia, Pa. to 2831 Haverford Rd., Ardmore,
Pa.

Pinellas Elec. Refrigeration Co. from Florida Arcade to 528 Central Ave., St. Petersburg, Fla. Poe, Frank N. from 3511 Royal Palm Ave., Cocoanut Grove, Fla. to Camp Jocassee, Sen-eca, S. C.

eca, S. C.
Powell, J. A. from 327 Elizabeth Ave. to 237 Jamaica Westview, Avalon, Pa.
Robinson, Roy from 302 S. Harris Ave., to 2310 Parker Ave., Indianapolis, Ind.
Ruck, Geo. J. from 60 Hazelwood Ave. to 825 Rialto Bldg., San Francisco, Calif.
Sherer-Gillet Co. from 17th & S. Clark Sts. to 601 W. Washington St., Chicago, Ill.
Tyson, C. B. from 1814 Catalpa Drive to Frigidaire Corp, Third National Bldg., Dayton, Ohio.

Frigidaire Corp, Third National Bidg., Dayton, Ohio.

Wampler, H. H. from 322 Edgar Ave. to 953 Five Oaks Ave., Dayton, Ohio.

Wattles, Waldo M. from 2025 East 77th St., to 7621 Euclid Ave., Cleveland, Ohio.

Walz, J. O. from 124 Florida St. to 116 Middlesex St., Springfield, Mass.

Wolfe Eng. & Mfg. Co. from 1408 Vernon St. to Box 40, Hill Sta., Harrisburg. Pa.

Zieger, Louis B. from 1729 52nd St. to 1452 55th St., Brooklyn, N. Y.

Zenson, H. A. from 629 Washington Blvd., Chicago, Ill. to 3416-a Texas Ave., St. Louis, Mo.

REFRIGERATION PATENTS

SPECIALIST IN HOUSE-HOLD MACHINES AND WATER COOLERS, INVESTIGATIONS, REPORTS, SEARCHES.
SPECIAL ATTENTION
PAID TO ASSOCIATE
WORK.

H. R. VAN DEVENTER SOLICITOR OF PATENTS 342 Madison Ave. **NEW YORK CITY**

THE CONDENSER

A CLASSIFIED COLUMN OF OPPORTUNITY

REPLIES to box number advertise-ments should be addressed to Electric Refrigeration News, 554 Maccabees' Bldg., Detroit, Mich.

ADVERTISING RATES—this column POSITIONS WANTED (special rate if paid in advance): 50 words or less, one insertion, \$2.00, additional words 4 cents each. Three insertions, \$5.00.

POSITIONS AVAILABLE, For Sale, Business Opportunities, and all other classifications (special rate, if paid in advance): 50 words or less, one insertion, \$3.00, three insertions \$8.00, additional words, 5 cents each.

LINE RATE (open account): 50 cents per line.

POSITIONS AVAILABLE

A Western distributor of General Electric refrigerators offers to a capable and successful Specialty Sales Manager an opportunity for attractive income. The man chosen will be one who can furnish satisfactory evidence of real accomplishment as retail Sales Manager of electric refrigeration or other specialty of similar selling price. References, age, photograph and experience in detail must be given in first correspondence. Also give your ideas as to earnings, This is a big job for a big man, Box No. 89

Service-men wanted. Opening for men thoroughly familiar with Servels, Copeland, Charapion, Superior or Zerozone. State age, experience and references. Apply by letter only to J. F. Hendrickson, Refrigeration Service Co., Inc., 449 W. 42nd St., New York, N. Y.

POSITIONS WANTED

ENGINEERING EXECUTIVE, connected with electric refrigeration for ten

years, desires connection with responsible manufacturer in temporary or permanent capacity as consulting or chief engineer. Capable of taking complete charge of engineering and manufacturing. Inventor and owner of widely used patents. Well acquainted with patent situation. Box 52.

I am anxious to make connection with large distributor as general manager or sales manager. Forty-three years old, married. Confident interview will convince as to ability, character, etc. Box No. 91.

Mechanical engineer, Canadian, thoroughly experienced in design, development, and production of electric refrigerators, wishes to make connection with progressive company who are either in production, or who would consider manufac ture of successful machine already designed, patented, and produced by advertiser. Box 93.

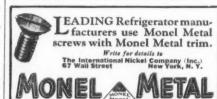
tion with some good company. Would like some foreign country, South American preferred.

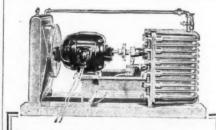
Superintendent. There is a bang-up, crackerjack superintendent and production man who knows how to build refrigerating units well and economically who is not happy in his present connection. Nothing but his high sense of loyalty is holding him there. He doesn't know this ad. is being run and probably wouldn't sanction it if he did. If you can use such a man, drop me a line and I will forward it to him. This ad. is not run by the man himself, by an attorney or an employment agent but by a friend who knows his capacities and capabilities better than he does himself. Box 95.

Refrigeration Service Co., Inc. SERVICE SPECIALISTS—Installations,
Alterations, Repairs, Inspection, Reconditioning, Maintenance
New York City Tel.: Chickering 0460
Nights, Sundays or Holidays,
Susquehanna 4500
Office and Works Warehouse
449 West 42nd St. 281 11th Ave.

DRINKING WATER **FAUCETS**

Refrigerators - - Water Coolers Cordley & Hayes New York City 1 Leonard St.





You will never know how radically different the Haven Electric Refrigeration System is until you have studied in detail the design and construction of this unique unit, as described in Bulletins "A" and "B"—free for the asking. Write, today. Sell this System.

HAVEN MANUFACTURING CO.,

HAVEN Electric Refrigeration

ELECTRIC REFRIGERATION NEWS

The business newspaper of the electric refrigeration industry

Vol., 2, No. 24, SERIAL No. 48

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DETROIT, MICHIGAN, AUGUST 1, 1928

Entered as second class matter August 1, 1927, at the Post Office, Detroit, Michigan.

PRICE TEN CENTS

DETROIT SECTION OF A.S.R.E. TO MEET AT WALDENWOODS, MICH.

Two-Day Outing Arranged for First Fall Gathering

C. C. Spreen, president of the Detroit section of the American Society of Refrigerating Engineers, announces that arrangements have been made for a two-day meeting on Saturday and Sun-day, September 8 and 9, at Walden-woods, fifty miles northwest of Detroit.

nilar

Co.,

Waldenwoods is a unique institution founded by the Cromaine Society for the express purpose of promoting industry co-operation. It is the scene of many notable gatherings of groups con-nected with the electric refrigeration, ice cream, and dairy industries. It was or ginally a 640-acre farm, the boyhood home of J. Robert Crouse. In the center of the square-mile tract is an inland lake well stocked with fish. A number beautiful buildings, especially designed for meeting purposes, are scattered through the woods bordering the Dormitories, with all modern conveniences, provide facilities for about 200 visitors.

Members of the society will provide their own transportation and will pay a nominal charge for meals and lodging. Most of the expenses will be defrayed by a surplus from the entertainment fund of the local section.

DISTRIBUTOR'S CONTEST LAUNCHED BY COPELAND

Copeland Products, Inc., Detroit, has launched a five-weeks distributors' championship contest with the field divided into ten districts and with a championship lov-ing cup for each district. The distributors have organized contests for their dealers with prizes. The contest started July 15 and is to end Aug. 18.

The first class in the contest includes

New York, Chicago, Los Angeles and Baltimore, Md. The second class includes Boston, Detroit, Pittsburgh, San Francisco, St. Louis and Seattle. The other classes are graded accordingly, to arrange the distributors so that they are competing with others who have been selling approximately the same number of units.

The silver loving cups are to be inscribed with the name of the winning distributor and remain a permanent trophy. A Christmas contest for salesmen is planned for late in the fall.

NORGE FACTORY RUNNING ON 24 HOUR SCHEDULE

The factory of Norge Corp., Detroit, is now running three eight-hour shifts a day, seven days a week.

Included in the sales which have made this schedule necessary are two orders recently reported, one from Dayton, Ohio, and the other from Boston, Massachusetts, which totaled 456 units. The Dayton sale of 201 units was

made by the Norge Dayton Sales Co., 647 North Main Street, to the Dayton Construction Co., for installation in apartments.

The Teplow Service of Boston, 782 Commonwealth, obtained a 255 unit order from the Eab Apartment Trust. These machines will be installed in the Crawford, New Fort, Kensington and Washington Apartments.

BERG MFG. CO. MOVES TO PROVIDE LARGER QUARTERS

The Berg Manufacturing Co., Gardner, lass., manufacturers of the Ice-Berg elecric refrigerator, has moved its factory and office into larger quarters in the Dunn Building on Main St. The change will increase the floor space of the company early four times that of the previous lo-An increase in production is planned.

J. F. Hendrickson Joins Refrigeration Service Co.

J. F. Hendrickson has been named as Nice-president in charge of service of the Refrigeration Service Co., 449 W. 42nd St., New York, N. Y. Mr. Hendrickson has been connected with the refrigerating industry for a number of years. In 1918 he joined the Isko Co., Chicago, Ill., and acted as service manager for five years. He resigned from this position to accept a similar charge with the Servel Corp., with which he has been associated for the past five years.

ANNOUNCEMENT

Increased Subscription Rate Effective Sept. 12

Beginning with the first issue of Volume III, to appear September 12, 1928, the price of single copies of ELECTRIC REFRIGERATION NEWS will be increased from ten cents to fifteen cents. The subscription rate will also be increased from \$1.50 to \$2.00 per year.

It has been the policy of the News to offer subscribers the lowest possible rate consistent with sound business. The rate has been advanced gradually with the in-creased size of the paper and in line with the additional postage and mechanical costs.

Until September 12 new subscriptions and renewals will be accepted at the old rate of \$1.50 per year, three years for \$3.00. Readers are urged to bring this offer to the attention of their friends.

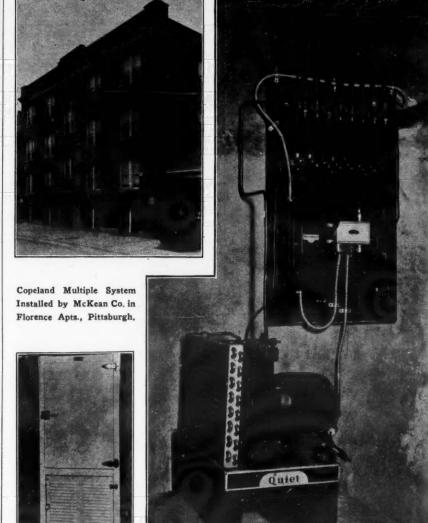
FIRE UNDERWRITERS DRAFT REGULATIONS FOR MULTIPLE WORK

Engineers Invited to Discuss Proposed Rules

Engineers representing manufacturers of electric refrigeration equipment for multiple installation met at the office of the National Board of Fire Underwriters, 85 John Street, New York City, Tuesday morning, July 31, in response to an invitation issued by H. E. Newell, engineer of the Board, to consider a tentative draft of regulations for the installation of multiple refrigeration sys-

H. E. Newell presided, assisted by H. D. Edwards. Chief Engineer Booth explained the purpose of the meeting. Suggestions regarding the proposed rules were offered by E. T. Williams, Fremont Wilson and others. The discussion lasted throughout the day.

Among those present at the meeting were C. W. Rulon, A. R. Small, R. R. Thompson, V. C. Kylberg, E. C. Zeisberg, J. E. Matthews, Glen Muffly, H. Simmons, L. S. Keilholtz, R. C. Smithers, J. J. Donovan, F. T. Harvey, M. R. Stoney, Otto Wilson and H. D. Edwards.



Manifold Simplifies Installation and Control of Multiple System

Interesting views of multiple equip-ment in the Florence Apartments, 1245 branch-off method. The la Arkansas Avenue, Pittsburgh, Pa., installed by the McKean Co., 5925 Baum Boulevard, Pittsburgh, Copeland distributors for western Pennsylvania, are shown above.

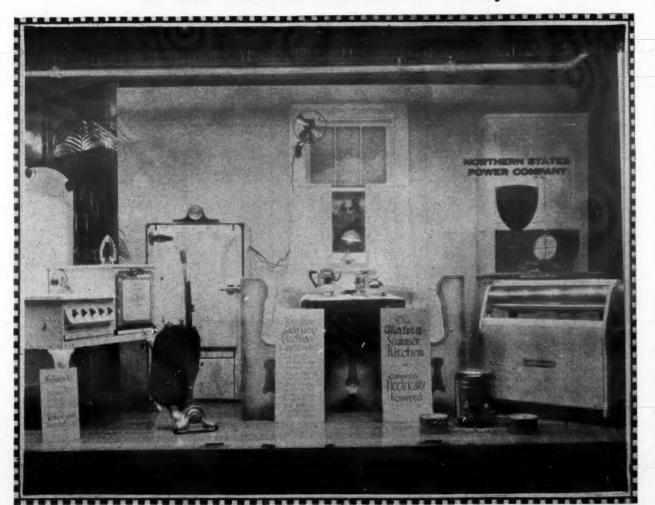
In making multiple installations, the McKean Company favors individual lines to each apartment connected to a manifold at the compressor unit thereby avoiding any hidden connections. The

in the Colorful Kitchen of Today

branch-off method. The labor cost on such an installation is also materially less, the McKean Company finds, because the work in stringing the copper tubing is much simplified.

In addition to the one-piece brass manifold which has shut-off valves for each individual line, there is mounted on the control board a Square D switch and an American Radiator pressure con-It is pointed out that the latter control has the advantage of a connection with both the high and low sides of

extra cost of the tubing used in an in-stallation of this kind is offset by the elimination of fittings, line valves, and the system.



Shades of light blue and green give a decidedly cool appearance to this modern kitchen display installed in a window of the Northern States Power Co., St. Paul, Minn., under the supervision of Frank Matson. Featured in the window are a Kelvinator equipped Seeger refrigerator in cirrus green, a General Electric utility fan, Hot Point range, Simplex ironer, Liberty iron, Corona percolator, Everhot cooker, Premier cleaner, Telechron clock, Royal waffle iron, Toastmaster toaster, and Hankscraft egg cooker.

A. H. GOSS RESIGNS AS CHAIRMAN OF THE KELVINATOR BOARD

Organized Company in 1914 and Was President Until March, 1927

A. H. Goss has resigned as chairman of the board of Kelvinator Corp. according to an announcement made by C. K. Wood-

bridge, president of the corporation.

In 1914 Mr. Goss organized Kelvinator
Corp. On January 1, 1926 the Electric
Refrigeration Corp. was formed, being
comprised of three main divisions made up
of the Kelvinator Niger and Leonard of the Kelvinator, Nizer, and Leonard

On March 1, 1927 C. K. Woodbridge became executive vice-president and general manager of Electric Refrigeration Corp. and in June, 1927 he succeeded Mr. Goss as president of the Corp., Mr. Goss becoming chairman of the board of direc-

STANDARD ICE CAKE SIZES SUBMITTED

Effective Oct. 1, If Approved

The Department of Commerce, in accordance with the unanimous action of a general conference of representative manufacturers, distributors, users, engineers and others interested in ice industries, held on June 13, at 704 Commerce Bldg., Washington, D. C., submits for approval of the industry the following schedule of weights and dimensions for ice cakes.

Standard weights for ice cakes for do

mestic regrigerators:
25, 50, 75, 100 and 150 pounds. Three maximum dimensions, as shown in the following table, shall be the limiting dimensions for each of the above weights, no ice cut in a given weight to exceed the dimensions given for that weight, and it being understood that in no weight will more than one of the three dimensions be a maximum:

Limiting Dimensions Weight in Pounds Inches 12x12x8 12x12x16 12x12x24 12x16x24

Many Electric Servants Assume the Burdensome Duties Copies of these recommendations of the Simplified Practice Committee have been sent to manufacturers, distributors, users, engineers and others interested in the industry for their approval and, if adopted, shall become effective Oct. 1, 1928.

The following standing committee was appointed to sponsor the recommendations adopted, and to review annually the adherence to the regulations and consider suggested changes or modifications: George B. Bright, American Society of

Refrigerating Engineers, chairman. Charles J. Gibson, president, Gibson Re-

Dr. Louise Stanley, Bureau of Home Alice Edwards, American Home Eco-

nomics Association. Leslie C. Smith, secretary, National Association of Ice Industries.

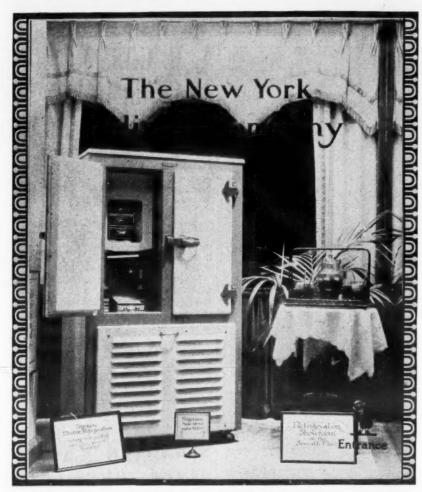
3300 ESTIMATES FILED IN BANGOR HYDRO CONTEST

More than 3,300 estimates were submitted in the guessing contest conducted by the Bangor Hydro-Electric Co., Bangor, Me., July 9-16 to determine the actual operating costs of a General Electric refrigerator on display. Mrs. William Smith, 196 Elm St., was the winner of the G. E. electric refrigerator with a guess of

\$0.547 for the ten day period.
On July 16 the seal on the meter was broken and the meter indicated that 18.26 kilowatts of electricity had been used, and on a basis of three cent rate would amount The refrigerator was exposed to the sunlight in the display window and the doors were opened more than 2,500 times during the contest, thereby placing it under abnormal conditions.

"Your paper has been of inestimable value to me and in every case possible I have had my dealers and salesmen subscribe to this paper as I believe no one in the electric refrigeration business should be without it."—L. J. Spiers, Huntington & Guerry, Inc., River and Hammond Sts., Greenville, S. C.

New York Edison "Sells the Idea" at The Crossroads of the World



In New York City a few doors from Broadway and 42nd St., which someone has called the crossroads of the world, the New York Edison Co. devotes one of the show windows of its 42nd St. branch office to the display of electric refrigerators. A Frigidaire in two-tone porcelain finish and a table on which sits a pitcher of iced grape juice make up this simple but effective presentation. A show card carries the information that the refrigerator showroom is on the seventh floor of the building. Orders are taken there and turned over to the manufacturer or his local representative.

Great Interest in Frigidaire's First Financial Statement

Copeland, Servel and Kelvinator Show Net Profits **During Second Quarter of Year**

Note: With the exception of Copeland posits and advances, \$15,866; deferred Wall Street Journal

Frigidaire

The first statement of condition of the largest electric refrigerator manufacturing concern in the world becomes available through the filing with the Massachusetts Commissioner of Corporations of statement as of December 31, 1927, by the Frigidaire Corp., a division of General Motors.

In the case of a wholly-owned subsidiary like this the figures are none too enlightening as witness the accounts payable of \$34,-428,959, which compares with total quick assets of only \$19,232,201. Chief interest in the statement probably lies in the inventory item of \$14,023,026 and investment, plant and machinery of \$18,438,810.

The statement of condition as of December 31, 1927, follows:

Assets	
Real estate	8,572,290
Machinery	9,034,442
Furniture, fixtures and tools	
Auto trucks, etc	333,991
Merchandise	14,023,026
Notes receivable	155,229
Accounts receivable	4,778,644
Cash	275,302
Deferred and prepaid expenses	538,178
Good will and patents	11,994

.....\$38,555,174 Liabilities 100.000 Capital stock . Accounts payable 34,428,959 Accrued liabilities Reserves 3,402,305 Total\$38,555,174

Servel

Profit of Servel Co., Inc., and subsidiary companies for six months ended June 30, 1928, was \$162,744 after interest and depreciation.

Net sales in quarter ended June 30 were \$3 307,145, comparing with \$1,243,842 in preceding quarter, making total net sales for first half of 1928 \$4,550.987. Current assets on June 30 were \$6,455,755, against current liabilities of \$601,865.

Balance sheet of Servel, Inc., and sub-sidiaries as of June 30, 1928, follows:

Assets: Cash, \$1,152,768; notes, accept ances and accounts receivable, \$1,490,871; in Electrolux Servel Corp., \$3,034,636; de- responding quarter of preceding year.

Products, the following finuncial statements charges, \$63,855; patents, etc., at approximate reprinted from recent issues of the mate cost to predecessor companies, \$304,-669; total, \$13,460,096.

Liabilities: 7 per cent preferred stock, \$6,500,000; common stock and surplus, rep resented by 900,000 no-par shares, \$1,845,-093; gold bonds, \$4,500,000; accounts pay able, \$380,947; accrued payrolls and insurance, \$118,605; accrued interest, \$18,486; accrued taxes, \$83,827; miscellaneous reserves, \$13,140; total, \$13,460,096.

In a letter to the stockholders of Servel, Inc., Frank E. Smith, president, said: "Our operations for the first quarter were preparatory. Although we were slightly in black ink in March, operating losses were incurred in January and February and there was a net loss in the preparation period of the first quarter as was antici-

"During the second quarter the sales department made substantial progress in establishing new dealer outlets and in booking new business, and production and shipments also progressed steadily into larger volume with corresponding profits.

"We have also maintained since January 1, 1928, 'owner service' at all major points in the United States not covered by dealer franchise, believing the goodwil! engendered would offset the temporary outlay until suitable dealers could be found and signed up.

"These retail and service operations at five major points, because of delay in finding suitable dealer representation, cost the company \$147,517 during the six months ended June 30, but negotiations are now in process which should relieve us at all points but one before September 1 next.
"Nationwide interest has been created in

Electrolux, the gas refrigerator, and with the co-operation of all the leading utility companies, the distribution of this product is making rapid strides.

"Bookings on all products are satisfactory for mid-summer, and we look for-ward confidently to good fall business in our several departments."

Kelvinator

Kelvinator Corp. (formerly Electric Re-frigeration Corp.) for nine months ended June 30, 1928, reports operating profit of \$601,297, against \$117,733 in same period of preceding year. Net loss after interest and other charges was \$406,626, compared with net loss of \$657,410.

Profit for the quarter ended June 30, 1928, was \$57,056 after interest, etc., cominventories, \$3,812,117; plant and property paring with profit of \$3,790 in preceding after depreciation, \$3,585,914; investment quarter and profit of \$333,792 in cor-

Balance sheet as of June 30, 1928, reflects the strongest current position the corporation has been in for the past 18 months, bank indebtedness having been reduced from \$4,750,000 as of September 30, 1927, to \$900,000. Cash totaled \$1,075,283, with current assets aggregating \$9,542,381 against current liabilities of \$2,735,742, making net working capital \$6,806,639. Deferred items had been reduced from \$648, 133, as of September 30, 1927, to \$385,831 at June 30. Sales of Kelvinator Domestic Refrig-

eration for the fiscal year to date are in excess of the corresponding period of 1927, but the volume of ice box and ice cream cabinet business is less than last year.

The Canadian and British subsidiaries both show profitable operation for the fiscal year to date.

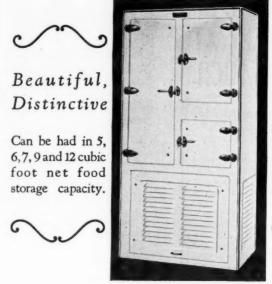
Copeland

E. H. Brown, vice-president and treasurer of Copeland Products, Inc., Detroit, authorizes the statement that the company's net earnings for the second quarter of 1928 were \$187,322.82, bringing net earnings, after charges for taxes and depreciation, for the first six months to \$227,394.06, equivalent to \$2.23 per share on the "A" stock outstanding. These figures do not take into account the operations of subsidiaries. All expenditures for national advertising, engineering development, etc., have been charged off to current expense.

"While second quarter earnings are very satisfactory," said Mr. Brown, "indica-tions are that third quarter operations will be better than for a comparable period in past years. A steady influx of orders made necessary a 33½ per cent increase in the July manufacturing schedule. July shipments will be more than double those of a year ago. Shipments for the first seven months of 1928 will exceed any previous full year in the company's history.

It is expected that Copeland's new fac tory, which will more than double present manufacturing facilities, will be ready for occupancy about August 1st.

BOHN'S Latest Achievement - The New BOHN "Super Quality" Refrigerator



White Porcelain Enamel inside and outside. The machine compartment is ideal for storage space where remote installation is made.

[Featuring the Insulated Baffle Wall]

The lowest prices in our 31 years of manufacturing "Super Quality" Refrigerators

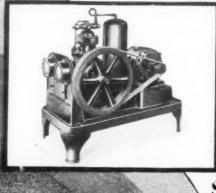
BOHN REFRIGERATOR COMPANY SAINT PAUL, MINNESOTA

These models are on display at our own stores in NEW YORK **CHICAGO** BOSTON 5 East 46th Street



AY after day Servel commercial equipment is purchased, after all available types have been considered and compared. One outstanding reason is that Servel units give extremely high refrigerating capacity per

You have a great selling point there, coupled, as it is, with a unit that is simple, dependable—trustworthy. Servel is a fine, all-year investment for any business selling or serving perishables. But Servel dealers are finding that selling work this month is putting their midsummer profits ahead of last year.



Servel refrigeration units range in size from those suited to 5-foot domestic boxes up to the largest commercial installation. Write for illustrated literature and details.



Servel Sales, Inc. **Factory and General Offices:**

Evansville, Ind. Administrative Offices: 51 E. 42nd St., N.Y. Los Angeles

Oakland Chicago





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Best Methods of Best Salesmen ing, and increase the knowledge and confidence, and sales ability of every man Explained in Seeger Sales Course 5. It will make it easier to hire, train, and develop capable salesmen, and put them on a money making basis.

New Home Study Course Tells How to Use Most Successful Procedure

 ${
m THE}$ Seeger Refrigerator Co., St. Paul, Minn., has prepared an extensive selling course which it is offering to all its dealers and salesmen. The most practical merchandising and selling ideas in the refrigeration industry have been collected through a nation-wide sur- and a loyal organization. vey, during which every phase of refrigerator selling was investigated. This task occupied months of time and was carried out by the staff of the Business Training Corporation, specialists in this type of work.

How the Course Was Prepared

As a first step, observers were sent into refrigerator salesrooms all over the country to "shop" for cabinets. They found out just what selling methods are being used; what mistakes are being made; and what effective procedure has been developed. Other staff men interviewed successful dealers and salesmen and catalogued their ideas on selling refrigerators. Others went to factory officials and obtained the benefit of their experience and broad viewpoint. Production men, engineers and department heads supplied detailed information about the design, engineering, materials and production that go in to make each Seeger cabinet. The facts were not only explained, but the reasons for the facts in terms of modern refrigeration were also given.

From this mass of first hand information, the best sales ideas, the most practical methods, and the most widely applicable procedure were sifted out as raw material for the course. This valuable data that resulted was then organized into a complete guide for selling cabinets.

What the Course Covers

Unit I-What Your Customer Wants.

Getting the Customer's Viewpoint

—The domestic customer's basic desires:
 Appearance, Convenience, Pride of Ownership, Keeping Food Better.
 —The commercial customer's primary desire: Bigger Profits.

he commercial customer's primary de-sire: Bigger Profits.
he part played by the cabinet in satis-fying these desires.
low to appeal to the customer's basic buying motives.

Understanding the Customer's Needs

Understanding the Customer's Needs

- Winning the confidence of customers by studying their needs.

- How to draw out information about the customer's requirements, tastes, preferences, and buying power.

- How to inspect and test the customer's old cabinet.

- Selecting and recommending the right cabinet.

Unit II-Satisfying the customer's desires. What is a Good Cabinet?

Requirements of a good household cabinet Special requirements of commercial cabi-

nets,
—Types of cabinet design and construction,
—Materials commonly used in cabinets;
their advantages and disadvantages.

What Seeger gives the Customer

-How Seeger solves the basic problems, -Essentials of Seeger design and construc-

tion.

--How cabinets by Seeger meet the customer's desires.

--What the Seeger line includes.

Telling the Seeger Story

-Explaining the facts about cabinets by

Unit III-Helping the Customer to Buy,

Demonstrating the Seeger

-How to demonstrate the Seeger.

-How to combine the demonstration and sales talk.

authoritat mation o problems.

4. It will

 How to make your demonstration effective
 How to sell from the catalog. When the Customer Hesitates

-Finding out why the customer hestitates
-Removing hesitation by reserve demon stration.
-Removing hesitation by reserve sales talk
-Examples of good reserve talks.

Closing the Normal Sale -Working toward the close from the be-

Testing the customer's reactions.

Recognizing signals to close.

How to close at the first opportunity,

Unit IV-Selling in Spite of Difficulties.

Answering questions and objections

How to answer questions and objections.
 Common questions and objections and

their answers,

—How to handle the subject of price.

—Turning an objection to your own ad vantage.

Smoothing out the Difficulties

—Difficult situations of common occurrence
 —How to handle these situations effectively
 —How to handle different types of cus

tomers.

--How to deal with competition. Closing the Difficult Sale

-Planting the buying idea in the cus-tomer's mind.

tomer's mind.

Getting the decision on a minor point.

Winning the order on a choice—on an objection.

Helping the customer to make the decision.

How It Will Be Conducted

 Increasing your earnings by selling more and better cabinets.
 Why new cabinets should be sold to place old ones.
 When should remote or self-contained installations be favored?
 The growing demand for commercial installations.
 Your chance to make wore results.

How It Will Be Conducted
The make-up of the course sets it apart from anything of this nature that refrigerator men have seen before. It is in reality a course of application rather than a course of study, because the material is so practical and the methods of presentations. stallations.
our chance to make more money by tion are so skillfully worked out, that the suggestions and ideas can be put into practice at once. It will be conducted by correspondence, supplemented by group meetings wherever possible, so that every individual may get full benefit of the in-struction offered.

The text material, consisting of four booklets, is mailed to all enrolled at intervals of two weeks. During this period each man reads the text and works out interesting problems which test his ability to apply the proceedure. Wherever three or more are enrolled from one retail organization, group meetings will be held every two weeks for the discussion of the text and to stage sales demonstrations for the application of the new ideas. Manuals of instruction will be furnished to the leader of each group. Certificates will be awarded to those persons successfully completing the course.

Eight Outstanding Results

Results which the sponsors of course expect to achieve are summarized as follows:

1. It will bring to experienced dealers and salesmen the most successful merchandising and selling ideas of the industry, regardless of company affiliations, from all over the country.

Seeger.

Selling the machine by selling the cabinet.
The sales talk on the Seeger.
Selling the commercial installation.
How to make your sales talk interesting and convincing.

2. It will furnish a simple, practical and thorough training in selling Seeger cabinets for new dealers and inexperienced salesmen. 2. It will furnish a simple, practical and nets for new dealers and inexperienced

3. It will provide a comprehensive and authoritative statement of the best information on refrigerator construction and

4. It will develop greater interest in sell-

ing in salesmanship which will get the customer's interest more quickly, and close the sale more certainly.

7. It will help every man in the in-dustry to cash in on the steadily increasing interest of the public in refrigeration and on the growing demand for commercial installations

8. It will result in more sales—quicker sales-larger sales-increased earnings-

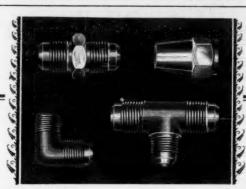
Rex Cole Issues "Years Ahead"

Rex Cole, Inc., 7 E. 45th St., New York, N. Y., distributor for General Electric re-frigerators, published in July its first issue of the house organ called "Years Ahead." The new publication will be published at frequent intervals and will be devoted to activities in the Rex Cole organization.

The first includes an item on the opening of a new display room at 8506 Fourth Ave., Brooklyn.

Benjamin Supplies Dealers With New Window Cards in Colors

The Benjamin Electric Manufacturing Co., 120 S. Sangamon St., Chicago, Ill., has made available to its dealers and distributors, six window and store display cards done in colors. Each card points out special features of the Benjamin allporcela'n cabinets, such as air-tight doors, a dome lamp, ebony trim, nickel fittings, and cork insulation. The cards are of hand-lettered style and trimmed in pastel



PIPE and TUBE

Made From Brass Forgings

For many years we have specialized in the manufacture of brass fittings, in small sizes, for connecting brass and copper tubing.

We are now producing similar parts made from BRASS FORGINGS—including a full line of forged nuts. These fittings are especially designed to meet the requirements of Iceless Re-frigerator Manufacturers for fittings of a superior type. These fittings will not leak gas, air or liquids under mechanical pressure. They have the compact grain structure, high tensile strength and smooth, flawless surfaces found only in forgings. Our forged fittings are accu-rately machined, carefully inspected and individually wrapped and labeled.

Send a sample or blue-print for quotations on parts of a special nature. Catalogue No. R-30, showing our complete line of standard fittings, will be mailed on request.

COMMONWEALTH BRASS CORPORATION 5781-5835 COMMONWEALTH AVE.



oah Webster has a word to say ~



is plenty of

Refrigeration, according to the man who wrote the dictionary, is "Reduction of Heat".

All electric refrigerators have two distinct systems which, combined, produce this reduction of heat. These are, first, a refrigeration system; second, a means of providing the necessary power: electricity in most cases.

The electric apparatus used is essentially the same in all electric refrigerators. With only minor alterations and adaptations, it has been standard for years.

Where electric refrigerators vary is in the construction and operation of their refrigerating systems, and the true test of efficiency is how well these operate. There

opportunity Welsbach Cabinets and Equipment from foundry to finished product-made in the same plant for variety, some being more and some

less effective; and the effort has been to make basic conditions right for "reduction of heat" in the easiest, simplest and most economical way.

Welsbach for more than forty years has been an authority on gases and heat-action, both of which are vital to refrigeration. Out of this experience has come Low Pressure, Slow-Speed Refrigeration.

Performance and service records of Welsbach refrigeration systems are bearing out the fact that Welsbach has made conditions right for effortless, velvet-smooth operation over long periods of time.

That, after all, is what is wanted by every owner of mechanically operated refrigerators.

Welsbach Company, 307 Ellis St, Gloucester City, New Jersey.

Welsbach

Low Pressure Electric Refrigeration WELSBACH LOW PRESSURE REFRIGERATION IS ALSO MADE FOR THE APARTMENT AND STORE

Kelvinator Data Simplifies Problem of **Estimating Commercial Applications** To facilitate the selection of the proper | pacities in B. T. U. per day-This group

equipment for satisfactory cooling of a refrigerator, the Kelvinator Sales Corp. has issued a collection of data for use in calculating commercial applications. The tables are divided into four groups.

Group A. Tables of refrigerator outside surface areas-This group is classified acfrom two feet six inches to twelve feet in six-inch intervals. Refrigerator depths range from two feet to twelve feet and heights from four feet to twelve feet, both also in six-inch intervals.

Group B. Refrigerator total loads in B. T. U. per day—This group is divided into three tables classified by the temperature difference, i. e., 40 degrees, 50 degrees, and 60 degrees, giving the total loads under the average usage conditions for various sizes of refrigerators insulated with 1 inch to 4 inches of corkboard. These tables also give the B. T. U. load for different layers of glass, which in many cases are used in refrigerator doors. The peak hour factors have been eliminated.

Group C. Tables of cooling unit ca- day.

is classified according to the cooling unit model numbers. It gives the width, depth and height of each cooling unit and capacities for operation at 1 inch, 3 inches, 5 inches, 7 inches, 9 inches average suction pressure for refrigerator temperatures of 35 degrees, 40 degrees, and 45 degrees based on unit operation of 14 hours per day.

Group D. Tables of condensing unit capacities in B. T. U. per day—This group is classified according to condensing unit models. The capacity of each unit is given for operation at 1 inch, 3 inches, 5 inches, 7 inches, 9 inches average suction pressure and 60 degrees, 70 degrees, 80 degrees 90 degrees, 100 degrees condensing medium temperature.

The tables are very simple and through the use of all four the correct unit can be determined. For example, the area in square feet is easily obtained in Table A, in Table B the load for that area at the given temperatures is obtained in B. T. U. while in Tables C and D the cooling and condensing units are rated in B. T. U. per

Pictures How Oil Burner And Electric Refrigerator Lines Dovetail for Profits

By Louis Lipman

In investigating the relations of electric refrigeration to oil heating, the co-operation of Fuel Oil was invited. The publishers of this magazine have supplied this paper, delivered before the American Oil Burner Association convention at Buffalo, last year. While this is not new to the oil burner group, it is believed that the value of the material presented warrants its publication for the benefit of electric refrigeration

to speak with any degree of finality, but rather with the thought of emphasizing the more important points, both for and against the proposition of the oil burner dealer handling refrigeration. In order that the best way he brought out on both that the best may be brought out on both sides of the subject, I am assuming in my premise that the relationship of the ice machine to the oil burner dealer is a cor-rect one from the dealer standpoint, yet at the same time I am developing the negative phases as I see them.

Let us first consider the situation from a positive standpoint. Such an arrangement would permit the use of the same show room, storage, stock and service room; thus the same rental applies to both. Next, as a general thing, the same office expense will handle both lines as it is not to be presumed that it will be neces sary to increase the office force for this purpose; it is my conviction that the proper calibre of salesmen can sell both lines. Detailed discussion of this will be taken up later. It is also my conviction that the proper type of service men can handle either an oil burner or a refrigerating machine for installation and service. As to the general expenses, aside from stock investment, there is no particular occasion for great increase, so we find that the two lines dovetail into each other satisfactorily. It would depend upon the manner in which it is handled as to whether the cash turn over on the investment would be greatly increased or not. Many things enter into this consideration, such as credits, factory shipping, capacities, datings, terms, territorial conditions, etc. It will be noted that the individual who buys an oil burner is a natural proswho buys an oil burner is a natural prospect for a refrigerating machine; hence the sales resistance should be greatly reduced, for you are talking to an individual whom you know and who knows you through previous business experience. If you have kept the situation sweet, you will find a recentive present in that the will find a receptive prospect in that the same salesman who has successfully sold an oil burner can with every reason expect to successfully sell a refrigeration machine to the same individual.

Objections to the Combination

From the dealer's standpoint, there are several objections raised which should be thoroughly discussed. The first objection raised is the inability of a specialty salesman to grasp and properly present more than one subject at a time. This same objection is raised relative to the service man. It is stated that the factory cooperation will react unfavorably where the energy, time, and attention of a dealer's organization is divided between two sales which the objection raised. subjects. There is also the objection raised that the investment in stock and parts is increased. This totals the array of dealer objections. It does not cover the objections of the manufacturer, who also may feel that failure to concentrate on his particular line is not a happy arrangement.

It would appear to me that the greatest consideration, at least the most serious one, involves the matter of sales and service. I am convinced that men of the proper calibre who have been successful in the sale of either a burner or a refrigerating machine, can very successfully and easily handle the other. One of the greatest difficulties in the past, with the sale of both these items, has been self-evidently erroneous sales intent to sell the mechanically detailed merits of the machine and the more or less dry subject of production technique, which interests the customer not one bit. He is not buying a piece of equipment, but is purchasing either heating or refrigerating service; so naturally the things to sell him are the advantages of the service rendered. It makes no difference what we buy, we never actually buy the article but the service we can get out of it, so we naturally should wish to sell

the service and not the article.
Conceding for the present that handling refrigerating machines by an oil burner dealer is to be favorably considered, I would like to present to you those phases in the order of their importance.

The first consideration, of course, in the selection of a machine is the company building the unit. I should say briefly that the reputation is first. In many instances this reputation cannot be based upon any extensive business relationship, because an organization in an industry as new as this and growing as rapidly, cannot be of any great age; yet preparations of the individuals forming the corporation can be easily secured. Next to reputation, financial standing has much bearing. By this I do not mean the great number of dollars and cents possessed by a company, but rather the nature of the company's credit; how it takes care of its bills, what its relationship with its credit the chief position as to importance.

In presenting this rather broad subject for consideration, it is not my intention with the question of reputation previously considered. Again, the next underlocking point is that of organization, such as to create confidence in its ability to perform the functions necessary for ideal co-operation. In conjunction with co-operation comes a question of the service layout of the company. Have they a competent school to instruct on installation and service. ice? Are they going to have field men, capable of rendering extraordinary service on particularly troublesome jobs? Again we have to consider the sales layout in selling you their proposition. Do they have a representative of sufficiently high calibre, morally and intellectually, to estab-lish in your mind a degree of assurance that this individual will look after your that this individual will look after your interests in the thousand and one ways necessary in your relationship with the factory? Last, and I say actually least, is the question of competition. The thing you do not want to do is to sell the other fellow's goods, so generally, the more you know about your competitor's article the know about your competitor's article, the better off you are.

For instance, if competition enters the field with an unusually low price, the temptation is to become seriously concerned, whereas the proper way to handle the situation is simply to let him work out his own salvation. Irrespective of what you or I may feel of the matter, it is all governed by economic laws over which we have no control, but under which we operate. An under-priced article may sell for a short time, but when the inevitable losses begin to appear, either in excessive service, disgruntled customers, unpaid accounts, or factory failure, the selling situation rights

Very briefly I should like to give you what I consider the salient points in the machine construction. From the dealer's standpoint, appearance is the first consideration, of course. This appearance must be backed by a reliable product. Reliabe backed by a reliable product. Reliability is determined usually from a mechanical standpoint through simplicity; hence the simplicity of the product is a most important point. Next comes the question of the nature of the refrigerant. Hours could be spent in profitable discussion of this point, and it should be considered thoroughly when taking on an agency. This would also apply to lubrication, which so vitally enters into the question of service. Another point of equal tion of service. Another point of equal interest from the service standpoint is accessibility of the machine. Can it be easily, quickly and cheaply serviced? Is it rugged in construction, and from a sales standpoint is it quiet in operation?

Important Factors in the Contract

Having determined all the foregoing points, we are ready to consider the question of a contract. Of first importance in of duration. If a manufacturer is not willing to consider a contract of sufficient length of time to permit the development of organization and sales, I should say that that particular proposition is not that that particular proposition is not worthy of serious consideration. Passing the point of duration comes the question of list prices and the discounts offered to the dealer. It is my opinion that the time will come before long when the list prices of all household units will be raised and the longer discount permitted to the dealer. Either this will occur or there will be a few very large manufacturers with new ones constantly coming out, and even if there are a few large manufacturers, it is my opinion that they will ultimately raise their lists or selling prices to the consumer. The next consideration in the contract would be the question of a minimum pur-chase clause and the requirement graduation. In conjunction with that clause would be the question of the territory to be allotted and the intensiveness of the proposed sales campaign covering this terri-After these points have been considered, the question of the terms with the manufacturer would be given most careful consideration, and the contract would be carefully worded as the parts stock to be carried in relation to the minimum requirements to be purchased; also much careful attention would be given to the selection of the show room equipment

Having made a contract, our next step is to consider the question of sales. sales we must consider what type are our sales manager and salesmen. manager, of course, must be one who understands the salesmen's side of the story; who is familiar with the dealer's organiza-tion problems; who has a clear vision of the factory contact and capacity. salesmen to be selected must be that type who can work in harmony and to best purpose with the sales manager, and it is for this reason that I give the sales manager

must get out of his sales material the best results. He is responsible for the nature and volume of sales. I think one of the and volume of sales. I think one of the mistakes made in the past which has cost so dearly in ultimately dissatisfied customers is that the type of salesmen employed has been of an inferior nature. The fly-by-night type who stays on a job for a little while, draws a little expense money and spends his time in a negative manner is a most serious liability to any manner, is a most serious liability to any dealer organization. The man with good reputation and past record, to whom may be offered a liberal commission with a minimum drawing account, is the type of salesman who best fits into this picture. It will be found generally that he is of such calibre mentally that he has no difficulty in grasping the sales possibilities of both oil burner and refrigerating machine, and has sales ability to sell either or both in the many instances. Consideration must be given advertising campaigns, follow-up systems, the method of making calls, closing methods, and the sales co-operation with the service department.

Next we come to service. Service begins with the installation. A good service man has a complete mental picture of the installation before he starts work. This will result in a minimum of labor at the customer's place, a thorough acquaintance with the complete installation, and the work will be done with great promptness. A man who thinks through in this manner will never leave a job unless he knows it is perfect. This will save many, many subsequent service calls. When a report for a service call comes in, every effort throughout the entire executive should throughout the entire organization should be made to take care of this call just as promptly as possible. New business depends, to a large extent, on satisfied customers, and satisfied customers can be made only in this manner. You know, as a matter of fact, the properly equipped service man is the best sales tip-getter obtainable. He should be used in this man-ner and paid for it, for thus you build up his desire to be of service, to be pleasant, and to heartily co-operate with the sales organization.

Mueller forged Fittings For Mechanical Refrigeration



This nut is made to meet the demand

All Mueller Electric Refrigerator Fittings are especially designed to meet the requirements of mechanical refrigeration work.

They are forged—seepage is impossible.



A complete line of fittings are carried in stock-always, for quick shipment.

Mueller fittings can be supplied to suit your special requirements

Send us samples or blue prints for quotation

Mueller Brass Co.

THREE GENERATIONS OF BRASS MAKING



NORGE is Supreme

TORGE entered into the field of electric refrigeration later than other well-known manufacturers-it refused to merchandise its product until it was "just right."

Therefore, from the commencement of its career, Norge owners have been satisfied owners and are living advertisements to Norge quality supremacy.

Different from all other refrigerators, this supremacy is the direct result of the exclusive rotary type design of its compressor—the heart of the refrigerating system.

Its construction is integral with quiet operation and long, long life. No slapping pistons-no connecting rods with threat of future noise.

A 2-million dollar organization which has won and held international fame in the manufacture of precision machinery for the last 18 years, stands back of Norge.

This history is your guarantee, that in the Norge you finally select, you will find quieter, longer lived, more reliable and more economical refrigeration, than you even dared expect.

NORGE CORPORATION - DETROIT

Excellent territory is still open for distributors who can measure up to Norge standards. Write for full particulars, or, better still, call and see us at the factory, 670 East Woodbridge St., Detroit. Norge franchise is a valuable franchise.

Advantages for the Dealer in Selling Both Oil Burners and Electric Refrigeration

Dealers Indicate that Need of an Allied Product as well as Seasonal Factor Makes Combination Desirable

THERE have been, still are and no doubt there will be, articles whose sales are confined to certain seasons. But their number is diminishing rapidly each year. Furs are being sold for summer use, oxford shoes are sold all the year around, and automobiles, once thought a summer sales item, are now bought every month in the year.

It has to be admitted that the sales curve on many items may vary some

on electric refrigeration. Through daily

and consistently contacting with a high class of "able-to-buy" prospects, they have frequently been confronted with the op-

portunity to sell their oil burner owners

other items, such as an electric refrigerator.

with their high class clientele becomes a

cashable asset and through this contact and

prestige the door is opened for further business. They have found that a satis-fied oil burner owner is alert to their sug-

gestions, has the confidence in their recom

mendations and is willing to leave to them the question of what electric refrigerator

In reviewing these distinct advantages

from a sales standpoint, electric regrigera-tors, among other specialties, became na-turally a logical item to sell. On the

one hand oil burners cater to the warmth,

convenience and comfort of their customer,

while electric refrigeration, the other end

Selling Costs Reduced

trating more on a discussion of the cleanli-

nical training is not necessary for selling

other neglected. But this condition is cor-

rected by the wide-awake dealer through

own special reason for "buying now"

both oil burners and electric refrigerators

and more dealers are awakening to this

fact and keeping active throughout the

should be purchased.

comfort and health.

The prestige they have thus established

for different months of the year. Oil burners and electric refrigerators are no exception, but each year sees a flattening out of the sales curves over the yearly period. A casual consideration of the proposition of selling both oil burners and electric refrigerators might lead to the conclusion that it is a logical thing to do, because one is a "winter item" and the other is a "summer item."

It appears to a dealer handling oil burners that if he sold electric refrigerators, it would help him take up the sales slack in the summer months. To a certain extent this is true, but there are far more important factors than a question of sum-

mer sales to be considered. In bringing out their Ice-O-Matic electric refrigerator, the Williams Oil-O-Matic Heating Corp. was seeking more than an item to help their dealers take up any slump in business in summer months. more important thought was that . of furnishing the dealer with an allied prod-uct—one catering to the convenience, com-fort and health in the home, as does the oil burner, and a type of product which makes its appeal, for the comfort dollar, to the same class of people.

A review of the activities of many of our dealers who have been handling both oil burners and electric refrigerators discloses groups that view the combination from a standpoint of winter and summer sales. Others are thinking in terms of allied products.

Sales and Service Men Trained in Both Lines

The Walker Electric Co., Boise, Idaho,

"We have found in the years that we have handled oil burners in conjunction with electric refrigerators that they are a very successful item. We find that it enables us to keep our specialty salesmen busy selling electric refrigerators or oil burners at all times of the year. Also we have our same service men trained for refrigerators and oil burners. In that way our crew is kept busy the year around. Electric refrigerator sales run heaviest during the eary spring and summer months. As soon as the electric refrigerator sales slow up, we find that there is an immediate market for oil burners. To prove this fact, we sold two Oil-O-Matics in the last three days."

The manner of handling the sales of both oil burners and electric refrigerators seems to depend on the size of the city

or territory involved.

The Elin Appliance Co., of Newark, N. J., have their business thoroughly systematized. The electric refrigeration and oil burner departments have their own managers. Each department has its salesmen who specialize on that particular product and work at it twelve months in the year. Each department has its own service men. There is an interlocking of interests only where an oil burner salesman, in the course of an interview, uncovers a want or need for an electric refrigerator. This subject, however, is never discussed by the oil burner salesman but is turned over to the electric refrigerator salesman who later calls on the prospect. It is this continual discovering of live prospects for electric refrigerators that is prompting so many of our dealers to add electric refrigerators to Oil-O-Matic burners.

The Allied Products Viewpoint

From the "allied products" standpoint, the Stang Electric Service Co., Burling-

ton, Iowa, is quoted:
"We started selling oil burners in connection with electric refrigerators for the reason that we considered the oil burner business to be a specialty selling and servicing problem which is the case also with electric refrigerators. We feel that inasmuch as there is a slight variation in different seasons of the two types of products that these two will work together very nicely

You will notice they say, "There is a slight variation in different seasons." They, well as many others, have come to realize that consistent sales effort throughout the entire year has resulted in selling through every season, those items which appear to be what have been loosely

termed "seasonable." A further analysis of the comments of most of the dealers handling both oil burners and electric refrigerators indicates clearly that there is less consideration given to the seasonableness of either product and more emphasis placed on their being allied products. It is for this basic reason our Oil-O-Matic dealers are taking

The first section of the show was given over to the historical development of food preservation, starting with the cave and

visitor on the various exhibits.

leading up to the present day electric re-frigerator. Exhibits showing the method of smoking meats, drying fruits and wegetables, spicing, salting and canning of foods were included in the historical sec-

Much interest was shown in a compara-tive test between an ice refrigerator and an electric refrigerator. Meat, vegetables, fruit and milk were placed in both an ice refrigerator and a Frigidaire and the front of each cabinet was sealed with glass. As the test progressed from day to day the difference in the preservation of the two sets of food became more noticeable.

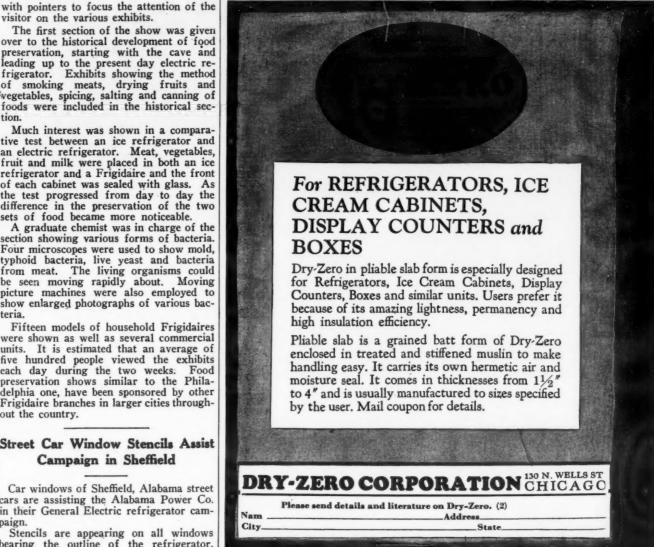
A graduate chemist was in charge of the section showing various forms of bacteria. Four microscopes were used to show mold. typhoid bacteria, live yeast and bacteria from meat. The living organisms could be seen moving rapidly about. Moving picture machines were also employed to show enlarged photographs of various bac-

Fifteen models of household Frigidaires were shown as well as several commercial units. It is estimated that an average of hundred people viewed the exhibits each day during the two weeks. Food preservation shows similar to the Philadelphia one, have been sponsored by other Frigidaire branches in larger cities throughout the country.

Street Car Window Stencils Assist Campaign in Sheffield

Car windows of Sheffield, Alabama street cars are assisting the Alabama Power Co. in their General Electric refrigerator cam-

Stencils are appearing on all windows bearing the outline of the refrigerator, and the General Electric monogram al-





THE success of nationally advertised products is traceable to the wide-spread consciousness of those products. When millions of buyers - in all parts of the country-KNOW, through advertising, the name and advantages of a particular product, that knowledge results in larger sales.

In the case of Monel Metal, larger sales can only come through increased sales of products employing Monel Metal. Therefore, all Monel Metal advertising is planned to increase the sales of manufactur-

ers whose products embody Monel Metal. The natural outcome is easier selling for everyone connected with such products. Salesmen, dealers and refrigerator manufacturers, themselves, all feel the influence of Monel Metal national advertising-advertising that is constantly telling millions of people that a Monel Metal trimmed product is a quality

Are you cashing in on Monel Metal advertising by talking and emphasizing Monel Metal trim?

SEND FOR DETAILS OF MONEL METAL ADVERTISING PLANS



FOOD PRESERVATION SHOW SPONSORED BY PHILADELPHIA COMPANY

The J. J. Pocock Co., Frigidaire distributors in Philadelphia have recently conducted an exhibit on food preservation. A large store in the heart of the Philadelphia shopping and financial district was used to house the exhibit.

Fifteen experienced refrigerator under the leadership of J. A. Mitzel-felt acted as guides so that individual care was given to every visitor.

The window display consisted of an at-tractive dinner table, showing appetizing dishes, set in formal style.

As the visitor entered, he was introduced to his guide. The guides were equipped

Thermal Engineering Co. Exhibits Allied Lines in New Showroom



Simplicity and good illumination are electric refrigeration and Sundstrand oil two of the outstanding features of the heating equipment. window display above which greeted visitors at the opening of the new sales-room of the Thermal Engineering Co., 19 South Eighth Street, Minneapolis, on June 30. This company recently has changed its name from Sundstrand Sales Co. and distributor for Iroquois and Haven Engineering Co.

John Baughman is the president of the company and A. Auman, manager. F. B. Hillwick, who was formerly connected as a sales manager with the Electric Refrigerator Co. in Ainneapolis is now in charge of refrigeration sales of the Thermal

OMAHA FIRMS HEAT-COLD COMBINE KEEPS SALES STEADY

Sales and Service Methods for Oil Burner and Electric Refrigerator Are Interchangeable

By Charles P. Rodman

Some of the Omaha refrigeration men think it is well, for a time at least, to carry some good winter selling specialty. Some of them are working radio in this connection, but there are two who have a decidedly different proposition. Milton Rogers & Sons Company, a hardware establishment, and Orchard & Wilhelm Co., the leading furniture house of Omaha, have taken on the oil burner as a winter seller in the specialty line.

Both these firms find a ready market for oil burners where the proposition is tackled in the specialty selling way. That is, by using the high pressure sales methods and making frequent calls on prospects. Both these houses say a good refrigerator salesman can also make good selling oil

The method is almost the same, the difference being he must educate himself on the oil burners just the same as he did in the beginning of his work with the re-frigeration. These houses take advantage of the burner canvas to secure prospects for the sale of electric refrigeration later. Should the salesmen find a home where there is a prospect of selling refrigeration later that home is carefully carded and placed in the prospect file for attention at

the proper time. H. M. Rogers, owner of the Rogers & Sons Co., says he has a close survey made of the homes for the purpose of selling an oil burner. Any home where they can af-ford such burner is also a good prospect ject will be broached at what is later con-s dered the most suitable time. He believes both these specialties will soon be sold the year through and all houses will, in order to make a success of the lines, keep trained specialists on the job. He has found it necessary to employ a special service man on the oil burner installation and thinks a good service engineer for refrigerators would also work out well.

Be that as it may, this firm has estab-lished a "Home Supply" department in which are carried electric refrigerators. oil burners, gas ranges and furnaces. All these will be sold direct to the home by special salesmen. These salesmen will call on all prospects for either article and at the same time make a survey of the needs

in the other fields. The Orchard & Wilhelm Co., a large furniture store of Omaha carries Copeland refrigeration and the Excello burner. A. J. Bartlett, manager of the department, uses almost the same methods in selling oil burners as he has heretofore used in selling refrigeration. He first secures his prospect, either through advertising in the daily paper or by having the party call at the store and showing an interest in the refrigerator. Owing to the fact that all furniture is sold in the store and not by solicitation he must be careful in making his appointments.

A salesman is never sent into a home in the interest of refrigeration until Mr. Bartlett has first talked with the prospect, either in person or over the tele-phone. When consent is once secured then a certain man is assigned the call. That man endeavors, of course, to make the

sale on the first call, but seldom does so, according to Mr. Bartlett. He will use the reverse side of his prospect card for the purpose of recording the result and at the same time date up the party for an-other call. Nine cases out of every ten take five calls before the sale is finally made. Mr. Bartlett naturally considers he has captured a good salesman when he secures one who can gain entrance to a home the fifth time as that invariably results in a sale in due time.

ELECTRIC REFRIGERATOR SALES HELP MILWAUKEE LIGHTING FIXTURE DEALER

By William Scollard

The Park Electric Co., 3418 Lisbon Ave., Milwaukee, Wis., dealer for Norge electric refrigerators, finds that electric refrigeration works in very well with its lighting fixtures and radio, according to John Guetzke, secretary. "We have only had electric refrigera-

tors in stock for a few months now, but we are more than pleased with the results we have had. We have a place of busi-ness here that is well known in Milwaukee and have seven display rooms for lighting fixtures. A large number of home owners visit our show rooms day after day. They come to buy lighting fixtures, and many of them also buy radios and electric re-

frigerators before they leave."
Mr. Guetzke stated that when the firm first took on electric refrigerators he immediately sent letters announcing this fact to many of his regular customers. This etter, which was sent to 800 people, brought in orders for eight refrigerators and also give the firm about twelve prospects, three of which later resulted in sales. This shows that a firm has no difficulty in finding people who are in the market for electric refrigerators. His firm is planning on including electric refrigeration on the sales sent to home owners featuring lighting fixtures. It might happen that a man will be in the market for an electric refrigerator, whereas he wouldn't answer the letter if it pertained only to fixtures. When the prospects visits the display room to buy a refrigerator, he might buy some

fixtures that are on display.

The Park Electric Co, has promoted a film advertising campaign throughout neighborhood movie theaters for a period of one year on fixtures and found that it brought good results. Electric refrigera-tion may be included on this year's pro-gram. Through this medium a large number of people are reached and many prospects are secured.

Public Service Corp. of New Jersey Makes Awards to Refrigerator Salesmen

The three prizes offered by the Public Service Corp. of New Jersey for refrigeraor sales made during the second quarter of this year were awarded to the following: A. J. Danielson, North Hudson, \$100; T. W. R. Meshew, Passaic, \$75; R. C. James, Orange, \$50. Each quarter the Public Service Corp. makes awards in this appliance division. this appliance division.

The prizes are awarded on a point system: \$10 worth of domestic sales entitles the salesman to one point, as does also \$20 worth of commercial sales. In order to win a prize, however, it is necessary for a salesman to obtain a minimum of 500 points.

WEST PENN ELECTRIC CO. IN DRIVE FOR 600 UNIT SALES JULY 15-OCT. 1.

The West Penn Electric Co., Pittsburgh, Pa., has launched a campaign to sell 600 Frigidaires from July 15 to Ocober 1. Five tons of direct mail pieces were sent out, in two mailings, to all the central station's customers featuring Frigidaire and the silver set premium to be given away with each refrigerator

Newspaper advertisements are being run n local papers throughout the campaign Street car posters are being used, and every employe engaged in the campaign will be supplied with a campaign plan

Four trips to Bermuda, four Frigidaires and \$640 in cash prizes have been offered in the campaign by the Suburban Electric Development Co., distributors of Frigid-nire in western Pennsylvania. Prizes will to to salesmen, supervisors and appliance clerks.

PIPER & TAFT, SEATTLE INTRODUCE KOLDERY SCHOOL

Piper & Taft, Seattle, Wash., introduced "Koldery School" in connection with heir recent open house demonstrations and lectures.

Miss Ina W. Herron, home economics expert, prepared and served complete luncheon menus, using only the electric refrigerator on display and demonstration, for the purpose. Miss Herron turned out before her guests with the aid only of the electric refrigerator, not only salads, and entrees, but meat courses, as well as des-

WELSBACH DEALERS!!



... FILTRINE - WELSBACH WATER COOLERS!

Here's a way to

increase profits!

The demand for electrically

cooled drinking water coolers is

sweeping the country...Banks, theatres, restaurants, hospitals,

factories, offices, stores are po-

tential buyers ... now is the

time to meet their demand with

coolers of proven dependability



Factory Approved Built by an organization famous for fifteen years . . . Equipped with Welsbach units . . . Backed by the reputations of both companies . . . FILTRINE Water Coolers are the most modern, most scientific, most dependable coolers ... the coolers of tomorrow, obtainable today ... the coolers that meet "peak" demands ... the coolers that give continuous, trouble-free satisfaction ... Write for

The FILTRINE

Manufacturing Co. - 49 Lexington Ave., Brooklyn, N. Y. Manufacturers of Coolers and Filters of All Sizes



Over 250,000 SATISFIED Users



"To the dealer in electrical refrigeration of any type, the prestige of McCray as a builder of fine cabinets has real profit value."



DIONEER in modern sanitary refrigerator construction, for 38 years McCray has held to an unyielding ideal of quality which is reflected in the remarkable service records of McCray installations.

McCray users have always been our best advertisements. This army of over 250,000 satisfied customers is striking evidence of that leadership which is further revealed in the fact that McCray is the world's largest manufacturer of refrigerators for all purposes.

In single stock units and complete builtto-order installations for the largest institution, McCray quality is held to this single high standard.

All McCray models may be used with electric or mechanical refrigeration of any type, or ice. Pure corkboard, sealed with hydrolene by a distinctive process, provides perfectly air-tight insulation.

Send for latest catalogs and further information about refrigerators to meet your specific need. No obligation, of course.

McCRAY REFRIGERATOR SALES CORPORATION

Dept. 66. Kendallville, Indiana

SALESROOMS IN ALL PRINCIPAL CITIES (See Telephone Directory)

McCRAY REFRIGERATORS

Says Automatic House Heating Is to Be Followed Soon by **Automatic House Cooling**

Possibilities Include Forced Draft Cooling Through Present Hot Air Pipes, and Gravity Systems To Be Installed in Attic

By J. E. Bullard

C INCE the war there has been a greater demand for automatic house heating than ever before. Each year sees a large increase in the number of oil burners in use and gas companies are selling more and more gas for house heating. It is because it is so hard to find domestic help and that both oil and gas heating require practically no attention that these two kinds of fuel have been growing so in popularity.

Once a person has begun to use automatic heating he finds the winters the most enjoyable part of the year. With the temperature of the home always uniform and no effort required on the part of the house owner to keep it so, there is more real comfort in the home than was the case when it was necessary to shovel coal and ashes and the inside temperature had a habit of jumping way up and then falling way down.

Experience with automatic heating and experience with mechanical refrigeration has set more and more householders to wondering why the house cannot be cooled automatically in summer just as it is heated in winter. In a few cases this wondering has given place to action and we find houses being built which will be cooled in summer as well as heated in winter. There will be automatic temperature control the year round.

In some ways there are better reasons for cooling the house in summer than heating it in winter. When it is cold one may keep warm by simply putting on enough clothes. When it is hot, however, it is not possible to be comfortable by taking off clothes.

When it is possible to cool the house why should a person suffer during the hot weather while during the cold weather he keeps the temperature of the house up to 72 degrees. If he lowered the winter temperature to say 65 degrees he might be able to save enough money to keep cool

People, however, are more interested in being comfortable than they are in saving money and winter temperatures in the home will not be lowered to any appreciable amount but the summer temperatures in the home are going to be lowered and the indications are that within a comparatively few years the house cooled in summer will be very far from a curiosity. As a matter of fact there is reason to believe that once people realize what it means to have a comfortable house on hot humid summer days, the demand for summer cooling may exceed the ability to

There are two systems of cooling that should work satisfactorily. In one system the refrigerating unit is placed in the basement, the air to be cooled circulates through the cooling coils and is forced through pipes to the rooms to be cooled by means of an electric fan.

In the other system no fan is required. It is what might be called an inverted warm air heating system. That is every-thing is upside down and in place of a furnace there is a refrigerating unit.

The unit is placed in the attic and the air passing through the coils drops by gravity down pipes like hot air pipes to the upper part or the rooms to be cooled. The air that has been cooled enters the oom on the inside wall near the ceiling, falls to the floor cooling the air in the room and also absorbing the excess moisture in that air and then as the air warms, it passes out through a register near the ceiling on the outside wall and goes to the attic to be re-cooled.

Circulating cold brine through present radiators of course will not prove satisfactory because as the air is cooled there is bound to be precipitation of moisture in he rooms. In extreme cases this will take the form of a heavy dew leaving a ilm of heavy moisture on everything in the rooms cooled. Utilizing present warm pipes also will not prove altogether atisfactory because the air coming in lear the floor flows along the bottom of he room and does not have a chance to mix quickly with the warm air in the room as it does when coming in near the ceiling. Besides there is almost certain to be more marked pressure and more power required to force the cooler air through the system.

As the air is cooled in passing through the cooling coils, of course excess moisture in it is precipitated at once. When this air enters the room it will have a slightly higher temperature than when it left the cooling coils and will be dry enough to absorb moisture from the air in the room.

Properly designed and installed such a ystem will keep the air in the room not only cool but at the proper humidity. The problem is not as difficult as heating for whereas in heating provisions must be made for a difference between the inside and the outside temperatures of seventy degrees, not more than thirty degrees dif-to the salesman.

It is not likely that it will prove desirable to use the cooling unit also for the purpose of cooling the household re-frigerator any more than it is desirable to use the house heating unit for the pur-pose of cooking as well. Whereas the difference between the refrigerator temperature and the room temperature is from thirty to fifty degrees depending on how hot the room may be the temperature drop required of the house cooling unit will be from say five degrees to thirty degrees with possibly a somewhat higher difference in sections of the country where the thermometer climbs up over the hundred degree mark.

The actual drop in temperature at the cooling coils of the air that passes over them, may be as much as twenty degrees below the desired room temperature. This drop of course must be regulated to a certain degree by the amount of moisture it is necessary to take out of the room. On hot humid days in August more moisture has to be taken out than on dry days that are also not so hot.

The air that passes through the cooling coils must be cooled down enough to precipitate sufficient moisture to enable it to absorb as it mixes with the warm air of the rooms enough moisture to prevent any excess humidity. It is just the reverse of the system used on warm air heaters. In these heaters water is evaporated by the air that has been heated and passed over a water pan. The air comes into the room with excess humidity but when mixed with the air in the room, the humidity drops and becomes at least somewhere near what is desired if the furnace is of the proper design with the water level in the pan kept automatically at the right level.

In the case of cooling it is necessary to take out moisture and this is done by reducing the temperature of the air till excess moisture is condensed out. Therefore in a sense cooling is simpler than heating. When we heat we have to add heating. When we cool, we merely cool water. down the air to a point where the excess water condenses.

The field for house cooling units is fully as big, perhaps even bigger than the field of household refrigerators. It is impractical to use anything but mechanical re-frigeration for cooling rooms. No one is at all likely to start using ice for the purpose. People, however, have for generations been using ice for cooling food and the salesman selling household re-frigerators, mechanically cooled is up against the obstacle that past custom has set up as well as up against the competition of the ice man.

In house cooling there is no competition except past custom and since people are more desirous of comfort than they ever have been before, it follows that they are going to take to house cooling with avidity. There is not enough data available to show just what house cooling costs will average in actual available to the cooling that the cooling with a cooling to the cooling with a cooling to the cooling with a cooling to the costs will average in actual practice but it is obvious that the cost cannot be prohibitive and besides who would not give a good deal to have a really comfortable house on unbearably hot days in summer? The actual cost of operation is not nearly as important as the results that are attained, and the cost of installation is not so great an obstacle to overcome as it would have been twenty years ago.

SALESMAN DEMONSTRATES **VALUE OF PUSHING DOOR BELLS**

That house to house canvassing is valuable experience for the electric refrigerator salesman, is the belief expressed in an article in the July issue of *Electrical Dealer*. Fresh from a non-selling job, A. H. Merritt joined the retail organization H. Merritt joined the retail organization of the Electric Supply and Equipment Co., Albany, N. Y., electric refrigerator distributors. For the sake of acquiring experience Mr. Merritt pushed door bells for 30 days. He was then assigned to a definite territory and in his first 47 days sold 61 electric refrigerators, thereby proving that house to house experience is an asset that house to house experience is an asset

Indianapolis Power & Light Co. Emphasizes the Small Down Payment in Servel Window



"Twenty dollars down puts a Servel in your home," reads the sign in the background of this comprehensive Servel window display. Intense illumination emphasizes an Alpine effect worked out in appropriate colors on wall board.

CHILEAN REFRIGERATOR MARKET STEADILY INCREASING

During the past two years three con-cerns in Santiago introducing electric refrigerators in Chile have sold about 200 units, Robert G. Glover, assistant commercial attache, Santiago, advises the Department of Commerce. During the year 1927 electric refrigeration sets up to oneton capacity, valued at \$21,620, were exported from the United States to Chile and during the first five months of 1928 \$6,178 worth of these units were purchased by that country.

Up to twelve months ago well refrigerated foodstuffs were unknown to the Chilean public, and like many other countries it has been very slow in recognizing the necessity of providing refrigerating facilities for successful handling and marketing of perishable products.

Tacoma Firm Will Sell Servels and Oil Heaters

Ponder Brothers, Inc., Tacoma, Wash., have been appointed as Servel dealers in Tacoma and southwest Washington. In addition to handling refrigerators the concern will sell oil heaters and ranges

Electric Refrigerator Installed In South American House Boat

The Lago Petroleum Corp. at Maracaibo, Venzuela, South America recently installed a large model General Electric refrigerator in one of their "wildcat" camps located fifty miles away from nearest civilization.

The machine was transported by a barge up the river where three American drillers are living in a small house boat. This installation eliminates the necessity of sending six hundred pounds of ice twice a week to this camp.

The Hit of the biggest Oil Burner Convention ever held—the new

WILLIAMS

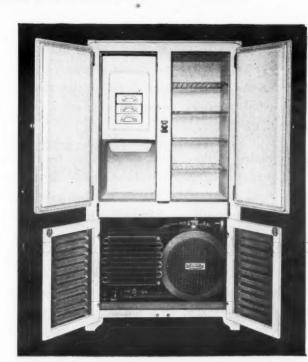
Over two thousand experienced specialty sales folks voiced their enthusiastic approval of the New Williams Ice-O-Matic at the Fourth International Oil-O-Matic Sales Convention, recently held at Bloomington, Illinois, June 25 and 26.

They studied Williams Ice-O-Matic carefully-examined it critically-and endorsed it whole-heartedly!

These dealers are selling Williams Ice-O-Matic by the hundreds now-and every sale carries a real profit that "stays put," for months of careful observation has proved service most inex-

Ice-O-Matic is right in its patented principle, right in design, and right to the last micrometer inspection in the making! And Ice-O-Matic is right to sell!

There are dealer franchises to be had for Ice-O-Matic, as well as for the new low-priced Williams oil burner for small homes-Williams Dist-O-Matic-and the world-famous Oil-O-Matic. Too, here is the new Williams Dist-O-Stove, supplying the great market represented by very small homes, garages, filling stations, and watchmen's shelters.



Perhaps your territory may be available for one or all of these fast-selling Williams products. Write or wire-

WILLIAMS OIL-O-MATIC HEATING CORPORATION BLOOMINGTON, ILLINOIS

ELECTRIC REFRIGERATION NEWS REQUIREMENTS FOR

The Business Newspaper of the Electric Refrigeration Industry PUBLISHED EVERY TWO WEEKS BY

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HUGH J. MOORE, Assistant Editor Copyright 1928 by Business News Publishing Co.

AUGUST 1, 1928

Related Merchandise

WHO makes the best dealer? The manufacturer who enters the field with a new household appliance is immediately confronted with this question. The possibilities of all available merchandising channels are analyzed in an effort to find the type of retail establishment which can assimilate the new product with the least difficulty and promote it to the best advantage. The character of the store, the facilities for display, the financial standing of the dealer, the type of customers served—these and other factors are taken into consideration.

Whatever may be the decision of the management at the sales conference, it is usually necessary to revise the program, more or less, after a period of experience in the field. Theoretical advantages are frequently offset by practical difficulties-limitations of ability or other conditions which act as obstacles to the fulfillment of the manufacturer's dream of a profitable and continually expanding volume of business. Often the manufacturer abandons his original plan to work in logical trade channels and approaches each local territory with a determination to seek the best dealer material available and frankly faces the job of supplying to the new partner in the business whatever may be lacking to insure successful operation.

Advantages of Specialization

No doubt the manufacturer who visualizes a great potential market for his device would much prefer to have a distributing organization in which every individual devotes his full time and effort to the one product. The advantages of concentration and specialization are obvious. local market for the appliance is of sufficient proportions to justify a specialized dealer this plan may naturally be expected to result in a more intensive selling activity. But even if the market is ample, as in the larger cities, rent and other overhead expense may be excessive and make it difficult to operate at a profit.

As the industry grows, however, and as competition becomes keener there is a demand for a continually increasing number of sales outletsmore points of contact with the buying public. With the spread of the distribution network to suburban communities, small towns and villages, and even to the rural districts, it becomes necessary to consider every possible type of dealer. So, regardless of the initial set-up, the electric refrigerator will inevitably become associated with other types of merchandise in the hands of the dealer.

In previous issues of the News, attention has been directed to the experience in merchandising electric refrigeration by department stores, hardware dealers, radio shops, and a variety of other trades. The combination of the oil burner and the electric refrigerator has been mentioned frequently and the subscription list of the News indicates that this particular combination is working out successfully in a great many localities. In this issue special attention is again given to the opportunities for combining these two modern and popular household appliances. There are several reasons for hitching the two together as a specialty selling team, not the least of which is the opportunity to sell both to the same customer.

Attracting Prospects Into the Store

One of the great problems for the specialty shop is that of getting prospects into the store. Related appliances help each other in this regard by providing additional attractions. This point emphasizes the desirability of giving consideration to other related merchandise which may also be used to attract customers. A number of items have appeared on the market recently whose novelty makes them particularly desirable for display along with the major line. Food containers, in glass and porcelain designed to be especially suitable for use in the electric refrigerator, are in this class. Syphons, mixers and other accessories for serving cool drinks are other examples. Novelties, and even staple merchandise, particularly items of nominal cost which may be sold over the counter to the casual visitor and which will not materially detract from the main purpose, may be used effectively.

THE REFRIGERATION OF DISPLAY CASES

Engineer Takes Issue With Frank W. Gray

COMMERCIAL REFRIGERATOR MFG. CO.

Service and Display Refrigerators 927 S. Los Angeles St Los Angeles, Calif.

July 28th, 1928.

ELECTRIC REFRIGERATION NEWS, Detroit, Michigan.

I have been reading with interest letters on the unethical use of the title "Engineer' and am heartily in accord with these writ ers. I am pestered daily with a lot of wild eyed "sales engineers" who took a week's course in some distributor's night school and soaked in "everything about refrigeration" in two hours a night for one week.

I have a bona-fide M. E. degree, hold chief engineer's license (marine, unlimited tonnage) and spent about ten years in ice making and cold storage work and would consider myself lucky if I knew 10 per cent of what there is to refrigeration. So cent of what there is to refrigeration. I was wondering if I was just plain "dumb" or if it was possible to learn 'everything about refrigeration' in one

It speaks well for the "forgetting" power of the great American public that they still buy "electric refrigeration" when they have had to pay for all of the mistakes of the refrigeration machinery manufacturers. When they started to go into production on "electrical refrigeration" the manufactur-ers handled it purely as a merchandising problem. They sent out unskilled and untrained men to sell, install and service their respective machines. Result: a lot of terrible headaches, a bad reputation and big red spots on the ledger.

It is finally dawning on them that they are not selling either machines or cabinets but are selling REFRIGERATION DE-LIVERED. That's what the customer wants to buy anyway. A pretty cabinet trimmed in violet and old rose may appeal to the aesthetic senses of the buyer but if they don't get refrigeration 24 hours out of the day they are peeved, and justly so. Thus it can be seen that it is up to every electric regrigerator manufacturer to turn out honest to God engineers and not "sales engineers.

I read with much interest the discussion by Mr. Frank W. Gray on display case refrigeration. He has given the proposition a good deal of study but when he says that proper show case refrigeration is not possible, I can say with safety that he is all wet. The trouble with the factories is that they have tried to make a stock coil that would fit all types of cases. have tried to apply production methods to the show case business and IT CAN'T BE DONE.

Each model and type of case must be engineered and the coil designed to fit the In designing coils for show cases the following must be considered.

1—The temperature must be the same in every part of the case. A variation of 10 to 20 degrees in the same case when fresh meat is displayed is not permissible, as meats will then freeze and spoil in the same case not five feet apart. Fresh meat must not be kept lower than 34 degrees or igher than 40 degrees.

2-Refrigeration must be accomplished with little or no circulation, as circulation of air causes dehydration and as-in the de-hydration process-oxygen is liberated brings on discoloration.

3-Discoloration with trimming losses is caused by de-hydration and decomposition. Meat must be kept below the excess ferment point which for practical purposes is 38 degrees F. This prevents rapid fermentation and discolora-

4-Coils must be designed so no display space is used. A three deck case does not have room for the usual bulky fin or annular tube boiler as the coil takes up more space than the meat.

-Coils must be fitted with sweat proof drain pans so during the de-frosting cycle water does not drop on the meat, as meat becomes spotted and presents an unappe tizing appearance.

-Machine must be set on a de-frosting cycle if possible. The frost should melt but not drip from the coils on the up cycle and congeal on the down cycle. This prevents de-hydration as no moisture is taken from the meats or other foods.

Then it can be seen that an annular over head coil in a two or three deck case is not practical, as the circulation is too rapid causing excess de-hydration. A fiin or radiator coil cannot be set at each end of the case as the circulation is too rapid and the temperatures vary from 10 to 20 degrees in extreme points of the case.

The only logical method then is to properly distribute the coils throughout the case, thus raising the coil temperature Circulation is caused by a difference in temperatures between two points. Make the temperature the same throughout the case and you materially reduce circulation Increase the coil temperature and you re duce de-hydration. Keep the temperature in all parts of the case below 38 and you prevent spoilage.

I have had "sales engineers" tell me that it couldn't be done. But we have done it. Hundreds of retail meat dealers are now doing business without worry or loss without a storage or reserve cooler. an illustration on a recent test four (4) pounds of water was secured from an 8 foot three deck case with an average daily load of 1,200 lbs. of assorted meats in THREE WEEKS TIME. An average shrinkage loss of 1½ lbs. per week. Not one pound of meat was spoiled in that time and the merchant stated that he had not been able to notice any discoloration whatever. Another interesting side light to this method of coiling cases was that fresh meat, fresh fish, cheese, butter, etc., was all kept in the same case without one food taking the odor of the other.

The coils acted as an odor condensing plant and prevented spoilage of foods through transmission of odors.

I am of the opinion that small machines should never be connected to single glass cases, as constant running time certainly

single glass cases are rarely brought below 50 degrees F. even with a large ammonia machine.

For perishable foods refrigerants with a low boiling point should not be used as the attraction for heat is so strong that moisture is pulled up with it. I have found that S O 2 and like refrigerants with a high boiling point are ideal for perishable foods in small pieces (like cut meats, cheese, etc.) and with this refrigerant and proper distribution of coils the shrinkage loss is neglible.

I did not intend to write such a long letter but I don't like to let any statements go unchallenged that I know to be wrong, Most of his statements are correct but when he says that it is not practical to keep meat in as good a condition in a display case as in a storage cooler or refrigerator I just had to dispute that point.

> GEO. R. LINDAHL, General Sales Manager.

A. S. R. E. Secretary Disturbed by **Publication of Proposed Safety Code and Changes by Engineers**

Past Policy Notably Unsuccessful in Arriving At Agreement on Measures for Protecting Public Health and Safety

N the front page of the July 4 issue Electric Refrigeration News reported a series of meetings held in New York City and Detroit at which proposed safety codes and regulations governing the installation, operation and inspection of refrigerating systems were discussed. On page 5 there appeared a complete draft of the proposed "National Refrigeration Code" which was discussed at a public hearing held in New York, June 25. On page 7 of the same issue appeared the complete text of a proposed refrigeration code for the City of Cleveland which was discussed at meetings of engineers held in New York City on June 26 and in Detroit on June 29. Following the discussion of the Cleveland code at the Detroit meeting, during which various recommended changes were agreed upon, the proposed National Code was also taken up and similar changes were agreed upon to be recommended to the national committee.

In the July 18 issue, on page 13, the proposed National Code was reprinted with the recommended changes indicated by revised paragraphs which were shown in italics. This was done so that the reader would not have to refer back to the original text in the previous issue.

The News believes that the distribution of the proposed National Code at public meetings automatically made this data public property and that the News acted entirely within its rights in giving publicity to proceedings of such importance to the industry. The NEWS has been criticized, however, for the publication of this data and the following correspondence relative to the matter is published in full so that the industry may have full details

Front Page Apology Demanded of the News

Night Letter—New York NY 354P Jul 23 1928

ELECTRIC REFRIGERATION NEWS, Maccabees Bldg., Detroit, Mich.

Please arrange a front page apology for your next issue on this code business I am getting from all sides about it (stop) To begin with our council has refused for months to allow the code to be published even by me and your doing so after Edwards advised you of this fact I cannot un derstand on top of which you got it wrong (stop) More serious however you print a revision of the code such that its own authors could not recognize it whereas the committee has not changed a line of it (stop) Whoever it was that wrote that code his name must be stated and an apology from him to the committee is also in order if he had any hand in its being printed (stop) This is a direct perversion of the facts for which the officials get the blame and creates a mess for them (stop) There is no personal offense for your mistake and I have not looked into the new draft enough to even guess who wrote it but for your own good on this standards work you ought to realize that it is very fussy as far as publication goes and must be got right.

News Believes Industry Entitled to Know Facts

Night Letter-Detroit, July 24, 1928

David L. Fiske, American Society of Refrigerating Engineers, 37 West 39th St., New York City, N. Y.

What's all the fireworks about? See July fourth issue for report of public meetings at which code was discussed and changes recommended with names of those in attendance (stop) If proposed code is adopted its requirements will be matter of vital concern to entire industry and the industry certainly has a right to know what is going on (stop) Anyone has a right to recommend changes (stop) Please be more specific about errors charged also who should we apologize to and what for?

ELECTRIC REFRIGERATION NEWS

(See Next Page)

News Charged With Taking Sides on Code

THE AMERICAN SOCIETY OF REFRIGERATING ENGINEERS July 24, 1928.

ELECTRIC REFRIGERATION NEWS, Detroit, Michigan.

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In wiring you yesterday I supposed I was only pointing out mistakes on your part which were unintentional. If I rubbed you the wrong way that may account for the tone of your wire. If not, I would be led to suppose that your paper is taking sides in the discussion on the code—which is fair enough in the editorial department but not to be excused in misrepresentation of news.

The parties concerned in varying degrees are these: (1) The American Standards Association, under whose procedure a Safety code for refrigeration is being drafted by a committee of forty men; (2) known as the Mechanical Refrigeration Safety Code (Sectional) Committee, and (3) The American Society of Refrigerating Engineers, which is the sponsor body. The relation of these bodies as well as publication policy is laid down in the yearbook of the first of these (formerly known as The American Engineering Standards Committee).

The specific points at issue are these: In the issue of July 4th you printed the code as it stands, a committee draft under con-sideration. (1) This you had no right to It was not released for publication and you were advised that under these conditions it could not be printed. I consider it neither legal nor courteous to print what an author has not written for printing, and asked not to be printed.

In the second place (2) your statement in the third sentence of the first paragraph is just the opposite of the vote taken at the very meeting you are reporting.

In the issue of July 18th (3) you print as the work of the committee what is not its work at all and never seen by any of the members until it appeared in print. Of course, you can print anything original you like; and there is no law to make you tell who wrote it. But you can't very well print as A's work what B wrote, and expect A to be very much pleased. I am sure this point requires no explanation. If B had enough authority of his own to accomplish his ends he would not have to steal A's. This is a direct misrepresentation, intended, as you must know, to influence a number of men who are considering this matter right now in different places. By every right in the world (4) the industry and the committee needs to know who the author of the newborn code

may be.
I don't see how you can expect to have CC: F. M. Cockrell.

any claims to having an independent or reliable paper if you are in a mood to let any of this pass without correction. And as I intended to tell you in my wire, it is as much for your own protection as anyone's that you ought not to print official stuff unless it is over the signature of somebody officially connected with it.

DAVID L. FISKE, Secretary.

Memorandum to Committee Members

A. S. R. E., July 24, 1928. Messrs. G. B. Bright, F. E. Mathews, P. G. Agnew, H. D. Edwards, R. R. Leonard.

In the July 4th issue of ELECTRIC RE-FRIGERATION NEWS the draft of the safety code, as it stood in the committee, was printed, without authorization from anyone and with the misstatement that it was headed for the main committee in September.

In the July 18th issue an entirely new code was printed, similar in form to the above under the title "National Code Showing Changes Recommended by Engineers." It is also stated that this is the "complete text with recommended changes." newborn code is entirely unclaimed as to authorship, and was a complete surprise to the Code Committee.

Inasmuch as this is a matter of publication policy not related to the merits of the code provisions, I have taken the matter up with the editors, and requested a front page denial in the issue of August 1st. The specific points involved are these:

- 1. Publication without authorization. 2. Publication after permission had been
- 3. Publication as a national code of private manuscript.

4. Failure to specify the name of the

I assume that all this was purely due to unintended errors on the part of the paper, with whom our relations have been excellent, but request that each of you in-dividually write Mr. F. M. Cockrell, editor, at the Maccabees Bldg., Detroit, and help me explain the need for straightening this matter out with such a statement of the facts as is needed.

> Very truly yours, DAVID L. FISKE, Secretary.

makes clear that recommended changes were made at meeting reported in July fourth issue and that revised paragraphs are shown in italics. This was done by the News to call attention to parts at variance with original code as published in previous issue (stop)

Detroit meeting at which recommended changes were made was attended by Spreen, Jolly, Pendergast, Kritzer, Timmerman, Donovan, Cockrell, Farmer, Nelson, and Keilholtz who were aware that action taken would be reported in the News. Have consulted chairman and secretary of meeting and they see no objection to publication of such information (stop)

Since all others wanted original code published and no injury has been caused by its publication and since it has been freely distributed at public meetings and since author of recommended changes fully approves publication of their proposals and since publication of such data tends to promote a broader understanding of the requirements for safeguarding the health and safety of the public and since publication is a service to the industry in that it makes available this information to companies and individuals who are admittedly entitled to it but who were not invited to attend public hearings or who were unable to attend such hearings and since thousands of subscribers to Electric Refrigeration News are vitally interested and concerned with the developments affecting their business and rightfully except the News to carry information of such importance in its columns therefore we do not see wherein an apology is due or wherein it is the duty of the secretary of the Society of Refrigerating Engineers to demand such apology from a member.

However will gladly publish communications to date in full in next the situation any nearer to a solution. issue so that industry may have both views of the matter.

Electric Refrigeration News.

CABINETS BY

SAINT PAUL

The Misunderstanding Is Cleared Up

THE AMERICAN SOCIETY OF REFRIGERATING ENGINEERS 37 West 39th St., New York, N. Y.

July 27, 1928.

ELECTRIC REFRIGERATION NEWS, 554 Maccabees Bldg., Detroit, Mich.

I did not know that in these several hasty communications that I was talking to the world, but I am sure that when published they will bring to light, to some degree, the points at issue.

Your telegraphic statement that the July 18th code came from the third meeting reported in the July 4th issue does clarify the situation, and surely clears you of any malice, in event you meant to report it as such. But the ordinary reader would never realize this, obviously, and I see no occasion for taking back anything I have said.

Your remarks about service, representation, etc., are gratuitous, and I am sure that the quality of motives of any of the bodies, which have been seeking a solution of this knotty code problem for several years, is to be matched against those of

However, if you want to take a hand in the job they will all be for you. Here is a challenge for you: Get the facts, make a little study of what the matter is all about-and then see frankly for yourself whether your part in it to date has brought

DAVID L. FISKE. Secretary.

DLF:JS

News Telegram Asks Twelve Questions Regarding Purpose and Status of Code—Fiske Admits No Injury Caused by Publication

Night Letter, Detroit, July 25, 1928.

Mr. David L. Fiske, Secretary, American Society of Refrigerating Engineers, 37 West 39th St., New York City, N. Y. In order to clarify the situation will you

First. Who is the author of the pro-

posed National Safety Code? Second. Who owns or controls it at the

present time? Third. What individuals, corporations or associations have the privilege of access

to the document? Fourth. Is the proposed code designed or intended to be offered in its present or in revised form for adoption by governtal bodies as a part of national, state

or municipal laws? Fifth. Is this activity presumed to be in the interest of public health and safety?

Sixth. Are manufacturers of refrigeration apparatus being consulted as to the provisions and requirements of the proposed code?

Seventh. If so, who are the manufacturers being consulted and how are they selected?

Eighth. Is the electric refrigeration industry represented on the committee of forty men mentioned in your letter?

Ninth. If so, how were they selected and by whom were they appointed?

Tenth. Has the proposed code been read or distributed as one or more meetings open to the public? Eleventh. Is the text of the proposed

code as published in the July 4th issue of

the News a true copy of the official docu-

Twelfth. What injury or damage has been caused by the publication of this matter in the News and who has been so injured or damaged?

ELECTRIC REFRIGERATION NEWS.

New York, N. Y., 915 A July 26, 1928. ELECTRIC REFRIGERATION NEWS, Maccabees Bldg., Detroit, Mich.

One. A subcommittee of five men, one representing electric refrigeration, each man delegated to consult the manufacturers in his field. Two. The sectional committee in the

first place and after they pass on to the ASRE in the second which controls publication. Three. Twenty-eight bodies are repre-

sented, hearings are public and copies are distributed to anybody interested. Four. Yes, the present official code has been so offered since 1924.

Five. See first paragraph of code.

Six. See answer one.

Seven. All of them.

Eight. The electric refrigeration industry is not only represented everywhere but the entire consideration of the committee has gone to its provisions while the reason the code has not been published was that these representatives have consistently objected to this being done while everybody else wanted to print it.

Nine. See procedure of American

Ten. Yes.

Eleven. Yes.

Twelve. None on July 4th, see my letter relative to July 18.

A full page advertisement on the New All Porcelain line of Cabinets for Commercial Uses will appear in the Saturday Evening Post August

Every dealer in Electrical Refrigeration should know about this important profitable line. Write to

SEEGER REFRIGERATOR COMPANY

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ATLANTA 392-4-6 Spring St., N. W.

SEATTLE 1119 Fourth Ave.

Official Code Distributed at Public Meetings and Available to Anyone Interested

Night Letter, July 26, 1928

Mr. David L. Fiske, Secretary, American Society of Refrigerating Engineers, 37 West 39th Street, New York City, N. Y.

Answering telegram reference to fifth paragraph your letter of July twenty-fourth see headline and explanatory box in bold type which

Clever Display Tells the History of Refrigeration Graphically



Mechanical Refrigeration for Shipping Perishable Products Successfully Used in Europe

Greatest Progress by American Firms in Manufacturing and Marketing, but European Engineers Have Collected Much Scientific Data

Note: In connection with a news story headed "U. S. Shipping Board Seeks Better Type of Refrigeration," which appeared on the front page of the July 18 issue, the News invited suggestions regarding the best methods of securing more economical refrigeration for the long distance transportation of perishable commodities. In reply the following letter has been received from Edwin O. Graeffe, 773 E. Grand Boulevard, Detroit, Michigan. Mr. Graeffe is a native of Belgium. His father owned a big sugar refinery in Brussels. During 1917 and 1918 he served in the German army, after which he graduated as a doctor of law. He entered the export business in Hamburg and was sent to China for three years. In 1926 he joined Kelvinator organization and traveled extensively in Europe for this company. Recently he has been connected with the Detroit Kelvinator distributor as sales engineer.

In addition to Mr. Graeffe's comments regarding refrigerated transport of perishables, his letter includes references to scientific data on refrigeration by European

American firm to go through the same procedure as the firm who has success-

fully developed this line of business in Eu-

rope is willing to sell its experience to any

responsible American manufacturer, who

would be interested in promoting such re-

I believe this system, once started in this

country, would have quite a big future. It would further lead the way to the de-

velopment of automatically refrigerated

The very same device would be most

suitable for cooling passenger trains, which are so unbearably hot, especially in the

Southern part of the United States, dur-

Suggests Advantage of Exchanging

Experience

firm mentioned has considerable experience with big refrigerating machines from 10 tons upward. This firm would, no doubt,

be quite willing to exchange their knowl-

edge with the experience and patent rights

of some firm specializing in the small re-frigerating machine field.

This brings up a few more questions which I would like to see discussed in your

valuable paper the Electric Refrigeration

We are living in the time of big busi-

ness mergers, quite a few refrigerating

know there is no concern existing here in

America covering the whole field of re-

to the 500-ton machines.

frigeration machinery from the 24-pound

The result has been that the firms do

not know the exact limitation of their field

On one side over-ardent refrigeration sales

engineers (excuse the paradox expression)

have made dissatisfied customers by try-

ing themselves in a field which was not heirs, selling either too small a machine

sometimes two or three on one job, or too

big a machine. On the other side, a great

amount of problems remain unsolved be-

cause each particular firm considers those

problems as being outside of their terri-

German Professor Cooled Home in 1911

efrigerating industry is a young industry;

most people don't seem to know that the

refrigerating industry is far older than the

automotive industry. Artificial skating rinks have been built in 1870 in New York

1881 in Frankfurt, 1892 in Munich and in

Paris, the very next year a bigger one was built in Paris again, "The Ice Skating Palace" in Washington dates to 1896, in

erated an artificial skating rink in 1895

bout the same time both New York and

Brooklyn got bigger and better artificially

kating rinks. I can name 16 rinks built

ast century at a time before Henry Ford

ever operated his one cylinder horseles

carriage. Even household refrigerators have been built in the last century and

back in 1911 a German professor success-

Pittsburgh the "Schenly Park Casino"

Artificial skating

It is often said and repeated that the

I may mention here that the European

ng the summer.

frigerated trains here in the States.

Your article regarding systems of re- would probably not be advisable for any frigeration for the transportation of per-ishable commodities in the last issue was very interesting reading. I do not see, however, the point of the U.S. Shipping Board official who seems to object to machinery for this special refrigeration problem, since up-to-date machines taking up not more than 200 to 500 cu. ft. of room will refrigerate a whole ship or even a whole train.

If I am correctly informed, complete trains have never been successfully refrigerated by machinery in this country. This is rather surprising, as there is comparatively little difficulty in solving that problem. It might interest some of your readers to know how European countries are refrigerating perishable goods during train transportation.

One car of the train is equipped with a compressor having a capacity of 250.000 B. T. U. per hour, i. e., a 20-ton ammonia machine. This compressor is driven by a 50 T. P. il motor, a gasoline motor be-This compressor is driven by a ing objectional and hazardous.

On the low side sufficient brine is cooled to circulate through all other cars.

Since the condenser could not be placed on the top of the car on account of the tunnels, it is built in the side of the car as a combination air and water cooled condenser. Approximately 70 cu. ft. of water are used per day.

This complete machinery and a separate apartment for the mechanic in charge of the machinery takes hardly more than one third of the car, the rest of the car being used for cooled merchandise.

A few years ago a train consisting of 24 cars was detained in Italy for nearly a week, the cars standing in the full blaze of the sun all day long. The machine had to work of course about 24 hours a day, but the perishable goods reached finally their goal in perfect condition.

Cars Connected With Brine System at Loading Stations

There is obviously one draw-back with this system, that is, a car can only be refrigerated as long as it is connected to the car containing the machinery. This trouble has been overcome however by having the loading and discharging places, which always are refrigerated storehouses, connecting the cars with their own brine system, until the cars are connected with the

It may surprise some people here that in these trains nothing but ordinary saltused (NaC1), the reason being that saltbrine can be replaced anywhere, whereas other mixtures are often difficult to obtain. Besides there is quite an amount of brine lost every time the cars are connected and disconnected, therefor big quantities of salt are required and

any other brine would be too expensive. The experiments connected with the development of this machinery have been pretty expensive; a thousand construction details had to be worked out and many changes had to be effected to take care

The interesting history of the development of refrigeration continues to prove a popular theme for electric refrigeration window displays. The story is graphically told in an exhibit placed in the windows

of the St. Joseph Railway, Light, Heat & Power Co., St. Joseph, Mo.
Harper Lindsay, of that organization, is responsible for this creation which tells the story of refrigeration from the earliest days to be created. day to the present.
In the four upper pictures are shown

days of the spring house, the old well with its oaken bucket, and the cool cellar under the house before the days of furnaces. These four scenes, each depicting an era, are mounted on a revolving pedestal inside a cavern, which is shown at the right of the lower picture of the entire window. To the left of the window is the modern kitchen with its electric refrigerator.

Appropriately lettered cards accompany each scene and drive home a selling point.

successively the cave man's method, the



in Southwest Africa; he published a pamphlet about it the same year.

The electric refrigeration industry is not a young industry even though it has only made big forward strides in the last few years.

I was rather surprised to hear from one of the best refrigerating engineers in Eu-ope that an American firm had conducted around a thousand experiments, spending neaps of good money, to find out a fact which had been known to the scientists in this line for some 20 years.

I was even more surprised when I heard in executive of a big refrigerating firm saying "that there were no encyclopaedias showing if the air circulation in a given cellar would be sufficient to cool a given air-cooled compressor or the many other data which are needed by the refrigerat-ng industry. Those data had to be found by experience.

All those data have been found scientifically a long time ago and they all have been tried out practically. Of course many firms keep their experience for themselves, out since the big firms here have a great deal of experience, especially in marketing heir products, why not combine with the great firms abroad which have many, many years of scientific and practical experience of more technical nature.

Valuable Technical Data Available in German Books

As regards the encyclopaedia I would just mention the "Taschenbuch fuer Kaelterechniker" by George Goetteche which contains nearly all the data required. This author refers to some 20 or more other books for more complete data and it is not taking into consideration the latest information available because it has been published the last time in 1922. Another book full of useful data and

more scientific than the above-mentioned pocket-book is "Die Kaeltemaschine" by M. Hirsch, 1924.

For the layman and beginner in electric refrigeration problems I would advise "Die Eis- und Kaelteerzeugungsmaschinen" by R. Stetefeld, 1927, or "Die Eis- und Kuehl-maschinen" by F. W. Hoffmann, 1926.

In these books there are references to another 50 books, articles and pamphlets published on that subject. Besides practically all the data relating to the heating problem are useful to the refrigerating engineer and I don't think there is any missing link there.

Firms, after all, are not children who will not learn by the experience of others; the American firms have lots to show to the firms of other countries, as a matter of fact firms in other countries have been most anxious to learn from American firms. That is why America is having such a growth of export business in the refrigerating field. But why not profit of the resources and experience of other countries.

I do not think that by sending an engineer or two to some other countries of the emergencies met in the field. It fully cooled his home while experimenting much can be learned but I do believe that

by international business fusions, in which foreign firms will share our profits and we shall share the profits of foreigners an increased profit will be registered on both

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Some Suggestions to the New Dealer on How to Make the Business a Profitable One

The Relation of Overhead to Sales and the Temptation to Buy Indiscriminately Are Two Points to Be Carefully Watched

By F. W. Gray

TELLING a man how to make his business pay is like telling him how to be healthy. Certain general principles of economy and management may be laid down but there are individual differences in each business and general rules won't always govern each case.

However, the first talk which I delivered to my force of green salesmen this year was on the subject of "Elements of Loss in Electric

Refrigeration." The title may seem a little \$ pessimistic as an introductory dose for voung and aspiring salesmen. But the writer, having passed through a rather costly and bitter experience with another corporation in previous years, was motivated by a desire to have his men see things as they were, to visualize from the start the conditions they must confront, rather than leaving them to any future d sillusionment.

The radio business taught many dealers a lesson—the lesson of service to custom-ers. The proportion of dealers who made money in the radio business during the first four years of the development of the industry was very small. Those who made a success of it were in most cases firms who were sufficient unto themselves—that is, who engaged men competent to handle service and installation and who were not entirely at sea "when it didn't work."

Pick Men Who Know How

The same is characteristic of electric refrigeration. In building our present organization we picked men for service and installation who knew how. Consequently, if we begin a commercial job and find that the water assembly on the compressor leaks, we simply go ahead and fix it and send the manufacturer a bill. All of which is much simpler for him and for us. We never hold up a job. And we get results.

Every dealer knows the danger to the morale of a sales force in getting doubtful results from his equipment. Just a few bad jobs in the beginning and the salesmon may sell, but not so well!

No agency is any stronger than its sales force. In electric refrigeration, commercial and apartment house salesmen are much harder to develop than household men. In order to sell the larger jobs a man must have a thorough knowledge of equipment, an idea of how to design an installation, must know how to figure estimates, and must know how to present facts and not fancies. Therefore, any refrigeration dealer who considers taking on a complete line of electric refrigeration, including commercial installations, should be certain that he has not only service men, but also salesmen who know how to specify and sell the equipment.

Watch the Buying

The most important thing for a dealer to watch, with the exception of the relation of overhead to sales, is the temptation towards indiscriminate buying of a line in which he is not reasonably certain of his demand. Factory representatives have an unpleasant habit of guaging the po-tentiality of a dealer by the size of his first order. And in most cases endeavor to boost that first order to the highest possible figure, without regard for the resale. Then, even after the first order is signed and warehoused, there is a conaccumulation danger equipment, supplies, etc. which may be found at the end of the year to have absorbed most of the net profit.

Advertising and Publicity

As for advertising, the writer was in amount of money to obtain a good representation for the product, or rely upon less expensive methods of getting publicity.

An attractive display room with interest getting windows is always a business get-ter. Direct mail advertising is valuable only in paving the way for personal calls of salesmen. Without a personal followup, the writer believes that direct mail advertising is practically a waste of postage stamps.

The live dealer, however, will find many ways of getting publicity for his product through contact with his acquaintances, through keeping in touch with contractors, architects and builders, and through following up his consumers and getting their co-operation in the creation of new busi-

It is rather difficult for the manufacturer to visualize the exact merchandising problem of the dealer. It is unfortunate that more factory executives are not men who have had active experience in retail sales or in selling to the dealer on the road. In spite of the fervent promises of factory salesmen, the dealer is apt to lose out if he relies too much upon these assurances of good faith.

The Successful Dealer

Factory co-operation can never be more than a general assistance. The dealer who makes the grade in pioneering a new line is the dealer who builds an organization that is at least partially seasoned, and who methodically pushes sales and gets re-

sults on every installation.

Men learn by mistakes. If I can leave this one thought with the dealer who is new to electric refrigeration this article will have served its purpose: Hire experienced men who know their business to handle the service and sales managemont of your electric refrigeration department. Let commission men do your selling, if you want to, but make the founda-tion of your organization sound and you will get results.

COPELAND ADVERTISING CITED AS "AMONG THE BEST"

Benjamin Jefferson, of Milline Costs and Review, a national authority on advertising, lists Copeland advertising as among the best."

In his analysis of appeal he emphasizes the strong use of reverse illustration, as the advertisements feature a black background with the art projected in pure white. He calls the copy a "straight-from-the-shoulder appeal to utility with clear selling talk and abundance of detail, thus making for feminine attention." This type of advertisement he says "ranks as an upto-the-minute example of modern advertising." Copeland advertising is under the direction of Campbell-Ewald Co., Detroit.

Kelvinator — Philadelphia Gets Hospital Order for 14 Units

Kelvinator-Philadelphia, Inc., 36 South 17th Street, Philadelphia, have recently obtained the order to completely equip the Philadelphia General Hospital. The order the advertising business just long enough to learn one axiom—Either advertise, or don't advertise. That is, either advertise consistently and appropriate a sufficient contains about five cubic feet of food space and is mounted on rubber tired wheels so that it will be available for any part of the hospital.

SULPHUR DIOXIDE

ANHYDROUS ALYZED SULPHUR

Universally used in the production and servicing of refrigerating machines. Prepared for direct charging, with absolute protection afforded by complete laboratory analysis of each cylinder, large or small.

Exceptional dryness maintained as an additional safety factor Ten sizes of cylinders from 2 lb. to

ANSUL CHEMICAL COMPANY MARINETTE, WIS.

150 lb. capacity.

GRASSELLI CHEMICAL CO. Ltd Toronto-Montreal

Western Subsidiary
ANSUL CHEMICAL CO. of Calif. Modesto, Calif.



San Jose Distributor Finds Bungalow Offers Unusual Display Features

L. H. Bennett, northern California distributor of General Electric refrigerators, has moved his San Jose display rooms from the heart of the business section to

In addition to this the new home this residential location. The new home is, however, on a main thoroughfare and it is estimated that between ten and fifteen

thousand cars pass daily.

According to Joe I. Thompson, local manager, the move was made in order to gain an advertising advantage and to afford more adequate display facilities. In addition to these advantages the general overhead for the business has been cut con-

siderably by the change.

The new building, shown above, is a typical California bungalow with flat roof. is finished in brown stucco.

The large neon sign on the roof is an

advertising feature which definitely tells

In addition to this the new home affords fine display space for refrigerators. Entering the door one steps into the living room of the home. On the extreme left a sun room and corresponding on the right is the dining room. The three rooms which are no different in decoration and finish than rooms in the home of similar type, are separated only by high archways. This makes a display unit some 60 feet long and 25 feet deep.

Two rooms in the rear, corresponding to the bedrooms, are used for offices. bungalow kitchen is later to be fully equipped with modern electric devices and will be used for demonstration purposes.

WAGNER MOTORS FOR ELECTRIC REFRIGERATION Wagner Small Motors meet the refrigeration standard—mechanically quiet—built to close tolerances. Available in ratings from 1/2-hp. to 1 1/2-hp.

TEN PROMINENT USERS
Frigidaire Corp.
Kelvinator Corp.
Us. Air Compressor Co.
Kelvinator Corp.
Universal Cooler
Iron Mountain Co.
Merchant & Evans

Ten Promiting from y-np. to 12-12-18.

Use Significant Compressor Co.

American Blower Co.



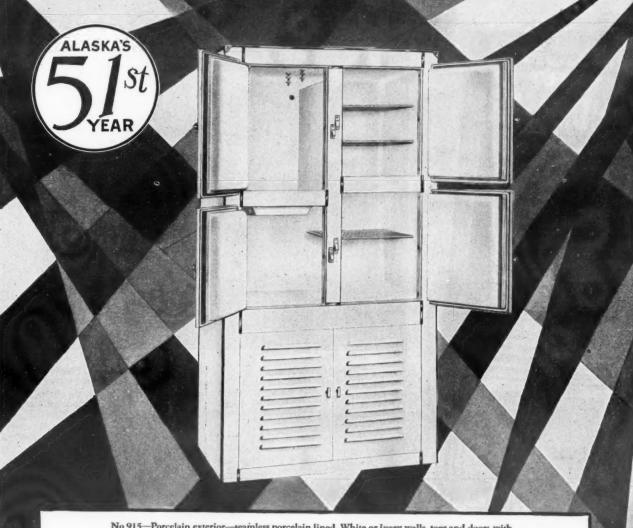
WAGNER FLECTRIC CORPORATION 6400 Plymouth Avenue St. Louis U. S. A.



Water Cooler

WRITE FOR DETAILS

FILTRINE MANUFACTURING COMPANY
49 LEXINGTON AVE. Brooklyn, N.Y.
laufacturers of fixters & coolers of all sizes



No 915—Porcelain exterior—seamless porcelain lined. White or ivory walls, tops and doors with gray, green or blue fronts. Also in special "to order" color combinations.

Sales that stick

BECAUSE distributors recognize that even the best electric unit may make a sorry showing in an inadequate cabinet, more and more of them are specifying Alaska cabinets. Now a great new development adds a new feature line.

of extraordinary public interest to the structural strength, the insulating quality and the satisfying beauty of Alaska cabinets. Make a note now to write for details about it and about the full Alaska

The Alaska Refrigerator Company Muskegon, Michigan

BRANCH OFFICES. Philadelphia, Pa. 304 Perry Bldg.

New York, N. Y. 206 Lexington Ave.

Chicago, Ill.

Dallas, Texas

Detroit, Mich.

Minneapolis, M.

St. Louis, Mo.

Dallas, Texas

Santa Fe Furniture Mart

Detroit, Mich. 432 Curtiss Bldg. Minneapolis, Minn. 603 Lumber Exchange St. Louis, Mo. 2029 Belleview Ave.

CORK-BOARD INSULATED

OPPORTUNITIES FOR FOREIGN TRADE LISTED BY DEPT. OF COMMERCE

The announcements listed below are taken from a press service issued by the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington, D. C. Firms and individuals may obtain further information on these announcements by applying to any of the districts or cooperative offices of the Bureau of Foreign and Domestic Commerce. A list of the offices and their ad-

dresses appeared on page ten of the June 6 issue of Electric Repriceration News. The asterisks (*) indicate that the in-quirer would act as both purchaser and

32298 Household electrical appliances and port able electrical tools, (Austria),

32251 Household electrical appliances and wiring supplies, (Canada)

32255 Electrical appliances, (Germany) 32254 Household and restaurant electrical de-

vices, (Netherlands) *32335 Household electrical appliances. (Argen tina)

32355 Insulating materials for electrical industry. (England)

*32340 Fans, table and ceiling. (Greece) 32349 Cold storage plant machinery, capacity

of 1,000 to 1,500 cases fresh fruit. (Java) *32329 Aluminum, enamel and nickelware. (Italy) 32375 Kitchen utensils. (Mexico)

*32327 Household electrical appliances: (Switzer-

*32440 Refrigerators. (Argentina)

32441 Electrical fixtures. (Canada) 32519 Refrigerating machines. (Germany) *32487 Enamels. (India)

*32486 Brass and copper sheets, rods, bars and pipes. (India)

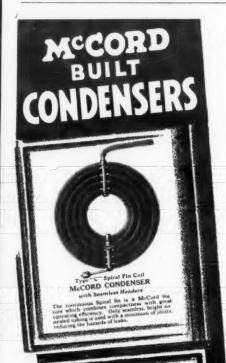
*32491 Vending machines, automatic. (Italy) 32528 Refrigerators. (Palestine)

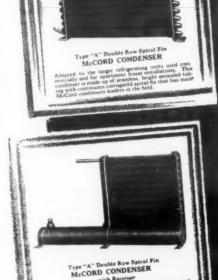
32528 Refrigerators and water coolers, electric (Palestine)

32452 Household electrical appliances. (Egypt)

32452 Refrigerators, household. (Egypt) 32453 Refrigerators, electric. (France)

32514 Enamelware. (Germany)

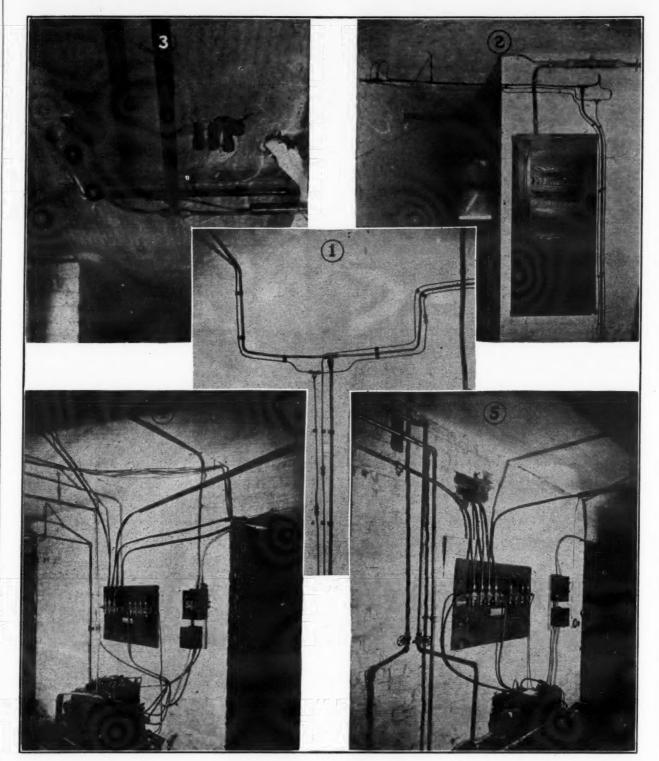




MCCORD RADIATOR & MFG. CO. DETROIT, MICH.

Fremont Wilson, Consulting Engineer, Explains Why He Is Opposed to the Multiple System

REMONT WILSON, New York consulting engineer, a veteran of many fights over safety codes and regulations governing fire and casualty hazards, has become known as the leader of the opposition to the multiple system. ELECTRIC REFRIGERATION NEWS has requested Mr. Wilson to state his case so that the industry may be informed regarding the basis of the controversy. The following letter and exhibits represent the first installment of Mr. Wilson's



FREMONT WILSON CONSULTING ENGINEER 50 Church St., New York, N. Y. July 28, 1928.

ELECTRIC REFRIGERATION NEWS,

Replying to your favor asking me to state why I have always been opposed to

danger to human life, and perhaps to prove that my fears are not groundless, may I ask your indulgence for space enough to publish the following copies of some photos

taken very recently for me.

Photo No. 1 is typical of work being done in New Jersey, and shows copper tube work on side walls of a basement hall, which is a thoroughfare for tradesmen and employees. Note the absence of all mechanical protection to the soft copper tubes, and that anyone can readily damage them, unintentionally, and thus liberate generous quantities of S O 2 gas. Especially observe how the tubes are brought up from the compressor, which is located in the cellar, just beneath vertical lines.

Central Maine Pr. Co. Offers Cash C. W. Bloom Heads Distribution Sales Bonuses to Employes in Sales Contest

The Central Maine Power Co., Augusta, Me., is offering to all its employes cash bonuses to stimulate their active interest in a "K-W-H Contest." A cash bonus of \$3.00 for every 1,000 points will be awarded to any employe for turning in a

name of a prospect who is later sold. The basis of scoring for major electric appliances is as follows: 1,300 points for range, 1,000 points for an electric re-The Electric Sales Co., Corpus Christi, Texas, has opened a new display room at 1024 Chaparral St. where Welsbach elec-tric refrigerators will be displayed. J. frigerator, 900 points for an ironer, 800 points for a cooker and 500 points for a water heater. The bonus is offered in addition to a number of fine prizes previously

cal protection, and note where the liquid gas mask. Now while anyone is finding and vapor lines cross the hallway, being down from ceiling, supported only by a thin strap; constantly subject to serious damage by any one passing through the under such conditions? Also not specifi-Replying to your favor asking me to state why I have always been opposed to multiple installations of refrigerators, would reply as follows:

I am opposed entirely on the grounds of dangerous flow or to human life, and perhaps to prove tection where tubes pass down into cellar.

Photo No. 3 shows typical installation of the so-called "conduit work." Note that where copper tubes enter conduits there are no bushings at ends of conduits, and the conduit ends noe even reamed smooth: weight of conduits resting on copper tubes; hole in cellar ceiling not made gas, or vapor, tight where the tubes and conduit lead to refrigerator on next floor.

Photos No. 4 and 5.—Illustrates very clearly the entire absence of any valve handles. In case of a leak some one (?) must find a wrench to remove cap covering valve stem and then a different wrench to fit the valve stem. In the meanwhile the S O 2 is escaping—so, of course, it is

of New De Soto Car

Corpus Christi Dealer Features

Welsbach in New Quarters

Remote is manager of the store.

recent announcement.

Photo No. 2.—Same absence of mechani- almost certain that a person must have a

tube lines behind the box leak, and to stop flow of gas, the same hunt for wrenches must take place, as if the leak was in the cellar.

Regarding the manner in which compressor units and their leader connections are made, can any one wonder why I object to multiple work as it is now placed in position?

Multiple can and must be made safe or else abandoned altogether. Lives are in constant jeopardy from the methods as illustrated.

Trust to send you in a short time photos showing safe multiple work. Very truly yours,

FREMONT WILSON.

Presentation Book Wins Order From Mutes

T. R. Harrington, manager of the Elec-Charles W. Bloom, formerly director of tric Supply and Equipment Co., distribudistribution of Kelvinator Corp., has been tors of General Electric refrigerators at appointed to the same position with De Syracuse, N. Y., was persistent in know-Soto Motor Corp., Detroit, according to a ing why the people moving about in a home which he called on, did not answer the door bell he had been ringing for several minutes.

He inquired of a neighbor who told him the family were deaf mutes. He was introduced and gave his "talk" by turning over the leaves of a sales presentation book. After the story was told, the important member of the family pointed to his order pad and signed on the dotted

Electrolux Unit Survives Bad Tumble

The H. A. Bubb Corp., Monroe, La., distributors of Electrolux in Northern Louisiana recently had an Electrolux unit on demonstration at Bastrop, and on moving the machine back to Monroe, in some manner it fell off the truck onto the gravel road and rolled into a five-foot ditch.

The machine was picked up, placed on the truck, taken to the warehouse where a "post mortem" was held over it as it was thought to have been completely ruined. However, after cleaning the ex-terior and hooking it up, it began refrig-erating as if nothing had happened.

East Stroudsburg Kelvinator Dealer **Pushes Commercial Equipment**

J. A. Seguine, 50 Washington St., East Stroudsburg, Pa., has been devoting special attention to Kelvinator commercial installations. He has recently installed Kelvinator units in the Hotel Rapids, J. C. Cincotta's Fruit Market and E. Deihl's Meat Market. East Stroudsburg is a town of less than 10,000 population.

Connecticut Power Co., New London, Sold One a Day for 13 Days

The Connecticut Power Co., New London, Conn., averaged one Frigidaire sale a day for the first thirteen days of July. A large portion of these were of the allporcelain type.

Laclede Gas Co., St. Louis, Offers Electrolux at Cost to **Employees**

The commercial department of the La-clede Gas Co. at St. Louis, Mo. has made arrangements for their employees to purchase Electrolux refrigerators at cost during the summer season, to be paid for at the rate of \$5.00 per month.

New Copeland Dealers in Spain and Canada

A dealer connection has been acquired by Copeland Products, Inc. in Spain with by Copeland Products, Inc. in Spain with the completion of a contract with Senor Gerardo Moledo, Pontevedra, Lourizan, while in Canada a new connection is the Schweitzer Electric Company in Hamil-ton, Ont. Copeland's export business is under the direction of the H. M. Robins

NEW INSTALLATIONS REPORTED BY DEALERS

Sixteen General Electric refrigerators have been installed in the Vendome Apartments, 1434 Jackson St., Oakland, Calif., by L. H. Bennett, G. E. distributor in Oakland.

The Burch-Bauer Co., 9-11 West Seventh St. Cincinnati, Ohio, has installed a General Electric refrigerator in the "Romona," a model home being featured at Ludlow, Ky.

A new apartment building recently completed at 24 Monroe Place, Brooklyn, N. Y., has been equipped with 52 General Electric refrigerators by Rex Cole, Inc., New York City.

A Frigidaire cooler was recently installed in the dairy of William R. Robbins at Glen Cove, N. Y. This equipment will maintain a temperature of 35 degrees above zero.

Frigidaires will be installed in the Capital

Frigidaires will be installed in the Capital Apartments, Olympia, Wash., by the Modern Utilities Co., 625 Capital Way.

The Spring apartments, Seattle, Wash., are installing Kelvinators, each apartment is to have its own individual unit.

The Golf and Country Club of Portland, Ore., has lately installed Kelvinator equipment in its kitchens and locker room.

Western Dairy Products Co., Seattle, Wash., has bought 50 Kelvinator-Nizer ice cream cabinets for its retail ice cream dealers in the Seattle district.

Emerson & Mason Co., Fall River, Mass., report the installation of Frigidaire equipment in the Sokoll Restaurant, 32 North Main St. Frigidaire has been installed in the Kimo ctionery, Albuquerque, N. M., by Cudab

Gass.

Electro-Kold Corp., Spokane, Wash., has the contract for equipping the state reformatory at Monroe, Wash. Four machines are included in the order which was sold by the Almvig Electric Co. at Everett. This firm is also installing an Electro-Kold on Dr. R. T. Robertson's yacht, the "Ruth E of Everett."

The Pringle apartments at 1330 Shattuck Ave., Berkley, Calif., containing eighteen Electro-Kold refrigerators, was recently com-pleted by the California Builders Co.

Mr. Death, of the Electrical Appliances Co., La Grange, Ga., reports that he recently installed three General Electric refrigerators in he Dunson hospital.

he Dunson hospital.

The Hamilton Furniture Co., Salem, Ore, recently received another carload of Electro-Kold refrigerators. They were installed in the Fisher, Virginia and Edgewater apartments.

A General Electric refrigerator has been installed in the Economics Classroom of the Colorado Agricultural College, Fort Collins, Colo, purchased through the Lowell Moore Hardware Co., dealers in General Electric refrigerators. Professor Crane of the college also purchased a General Electric Refrigerator.

The installation of Electrolux refrigerators in

The installation of Electrolux refrigerators in the Gordon Court apartments, 530 Montgomery St., Portland, Ore., has been reported by the Portland Gas & Coke Co.

A Kelvinator has been installed in the "Chateau," a model home in Cincinnati, Ohio, by the Kelvinator Latta Co., Inc.

Fh a n le o m ei

Frigidaire equipment has been installed on the model electric farm owned and operated by A. F. Hazen & Son, Alliance, Ohio, by the Alliance division of the Ohio Public Service Co. A 16 cubic foot model General Electric re-frigerator has been installed in the Sacred Heart hospital at Spokane, Wash.

Approving electric refrigeration as the health-ful means of preserving food, the Danville, Va. Health Office and Alms House have installed two General Electric refrigerators, through the Covington-Sams Hardware Co., local dealers.

Refrigeration Steals Place of Radio as Senior Partner In Mobile Hardware Store

President of Century Old Company Tells How Refrigeration Replaced Radio as Main Specialty in One Year's Time

By Archie Richardson



Electric refrigerators first came into the H. M. Price Hardware Company's store at Mobile, Alabama, to fill in the gap left machines work, but tell them to call on when "Old Man Static" put an end to our service department in case anything radio selling in the spring.

The first year the two lines were found

to fit together like coal and ice. When radio sales first showed a slump, the new line was ready to step in and take its place. The radio service man was given a course of training in servicing refrigerators and the store was now prepared to give him all-the-year employment. The sale on refrigerators the first summer was highly satisfactory, and the radio-refrigerator partnership arrangement seemed to be an ideal one.

But there was one thing that was not given full consideration at the outstart. The refrigerators didn't quit selling when the fall brought radio enthusiasm back. Unlike radio, it was found, the new line was not a seasonable one. Refrigeration is necessary all the year down in Mobile, and some people were ready to buy and almost all were willing to talk refrigerator through the winter months. It was made obvious the first year that it would be both profitable and desirable to carry on all-the-year sales work.

A Shift from Junior to Senior Partner in the Firm

And so it came about that the end of the first year saw a readjustment in the radio-refrigerator partnership. The latter was shifted from junior to senior partner in the firm, as it were. Instead of refrigerators being a summer fill-in for radio, the order was more or less reversed; through the summer the salesmen are working to their limit on refrigerators and scarcely have time for radio. But when fall comes there is a let-down on refrigerators and from that time until midwinter or a little past, radio selling reaches its peak, then more or less drops out of sight until next fall leaving the stage to the electric refrigerators.

The Price store entered the radio field something over five years ago, placing its new department under the direction of a trained radio man and that have since proved most successful in selling this line. Before the end of the first winter the radio sales were up to twenty per cent of the entire volume, despite the fact that this is one of the largest hardware stores in South Alabama and one which has been in business upward of

But it was realized that radio could never be more than a fall and winter proposition down on the coast, and lines to fill in the gap were sought. Electric appliances, lamps and fans were put in and went so well that they have become a permanent part of the store's stock. But they fell far short of taking the place of radio in the summer. It was not until the latter part of 1925 that they decided to try electric refrigerators as the fill-in. They soon found that they had what was needed, and that the problem was solved.

Selling Electric Refrigerators is a Highly Specialized Work

"Selling these machines," said S. N. Roche, president of the company, "is a highly specialized work and without the aid of a thoroughly trained man we would never have attempted to handle them. learned the importance of a specialist in our experience in radio, and he is even more important in selling electric refrig-

"We do not sell them as highly technical or complicated pieces of machinery. We learned years ago that a radio installation can best be sold as a means of bringing music and entertainment into the home, and we sell electric refrigerators as some thing more simple and more dependable than the old ice box. Our salesmen have

should go wrong and refer them to other users when prospects are doubtful as to whether they are as dependable as we represent them.

Servicing Not a Job for the Store's Handy Man

"Servicing refrigerators is not a very big problem when handled by men who know how, but it is no job for the store's handy man. The modern refrigerator combines electrical and chemical engineering and calls for a man who knows at least something of the how and the way of both the electrical and the chemical ends.

"Some of the first machines we put out more than two years ago were improperly installed and gave some trouble, but since then our customers have received universal satisfaction and the servicing end of our work is a small one.

"Selling refrigerators likewise calls for special training, and the average store salesman doesn't make a very efficient salesman without this training. However, a man who has been trained in one of the schools conducted by the manufacturers is generally packed full of information and enthusiasm and can sell to far better

advantage than the regular salesmen."

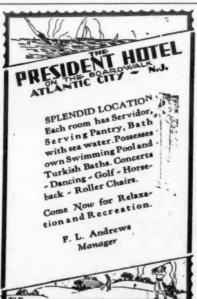
The electric refrigerator business is as yet only in its infancy and will rapidly grow to a big thing for the hardware store or others that sell, in the opinion of Mr. Roche. He is convinced from his own experience that it is a good line for the store that sells house-furnishings, provided it is handled by trained men. It calls for a great deal of missionary work in some cases and may not show a profit at the start, but he sees a big opportunity for the concern that gets out as many machines as possible into the hands of satisfied users, and thus gets well established in the field while the industry is

Selling Tactics Used

"Every woman wants an electric refrigerator," said Mr. Roche. "It would be hard to find one who wouldn't gladly swap her old ice box and the daily visits of the ice man for a refrigerator that is operated by wire and does its job far better than any ice box ever made.

"It is a simple matter to show a woman that one of our machines is more desirable and more practical than an ice box. We can prove this by referring prospects to ocal people who have used our machines wo years and more without any troubles.

"Coming down to costs, the expense of using an electric refrigerator is in nearly



the first cost; and where a family uses a considerable quantity of ice the saving on ice bills will in many cases pay for current and in addition pay for the refrigerator itself in a surprisingly short time.

The usual terms under which refriger-

ators are sold by the Price company are twenty-five per cent cash and the balance in twelve monthly payments. A six percent carrying charge is added to the price. The one-fourth cash, it has been found, is enough to prevent purchases being turned back on the store for the unpaid portion. When a man who has made such a cash payment, and perhaps a few monthly in-stallments, has to leave the city or finds he can not meet the other payments he will have enough incentive to make him find another purchaser and get out of it as much as possible of what he has already

A section of the store is given over to the display of electrical goods, and par-ticularly arranged for the showing of refrigerators to those who come in.

The Appeal of Real Food

When a woman drops in to inquire about electric refrigeration, she is shown a ma-chine in operation and containing a bottle of milk, meat, fruit and the other foods generally found in a refrigerator. She s asked to notice how much colder everything is than in an ordinary refrigerator and reminded that at such a low tempera-ture things will keep almost indefinitely. This always makes an impression for she knows that in her own refrigerator the same things cannot be kept more than a day or two at most in warm weather.

Then she is shown the compartments in which the deserts and the salads are frozen. This is something her own refrigerator will not do, and she becomes more interested than ever when told that the machine produces such a low temperature that it will enable her to freeze her ces without turning an ice cream freezer. She is asked to taste some of the deserts which were made this way and by some-

every case less than ice bills, leaving out one who knows how, and this never fails COMPARATIVE TESTS SHOW THE to increase her desire to own such a refrigerator.

When she leaves the store, whether or not she will buy is a matter of finances but there is never any question as to whether she wants an electric refrigerator.

THE FLANNEL SHIRT AS A REFRIGERATOR

"The hottest place on a hot day is a railroad yard," said an ex-brake-man, "and I know because I worked in one. In the first place there is nothing to obstruct the sun in its worst mood. Meanwhile the rails get so hot that one can't place his bare hand on one. I have actually fried an egg on a rail in the Toledo yards of the Wabash when I was a young fellow with thoughts of becoming president of the line. In those days the brakemen and section hands all wore flannel shirts and the more one perspired the cooler became the garments and that was no The evaporation of the perspiration that was absorbed did the trick."—Detroit News.

Natchez, Miss. Woman Sells Six Copelands in One Week

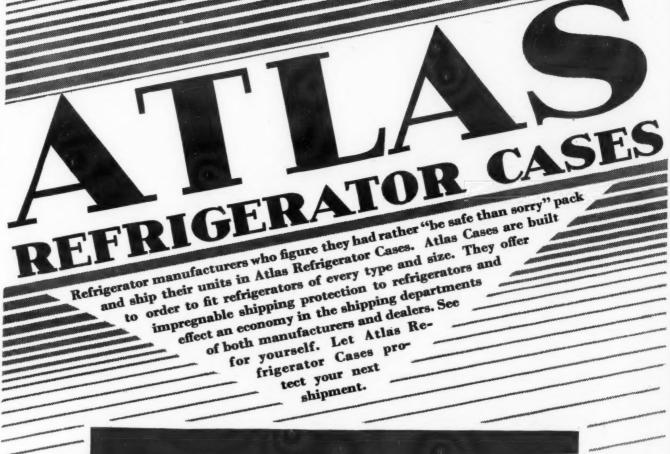
Questioned as to the success which woguestioned as to the success which women have had in selling electric refrigeration, A. M. Taylor, manager of advertising and sales promotion for Copeland Products, Inc., Detroit, cited the example of Mrs. Irma McNeeley of Natchez, Miss., who in one week, sold one sixteen foot Copeland equipped Segger refrigerator. Copeland equipped Seeger refrigerator, three deluxe No, 7 models, one model N-7P and one model N-5P.

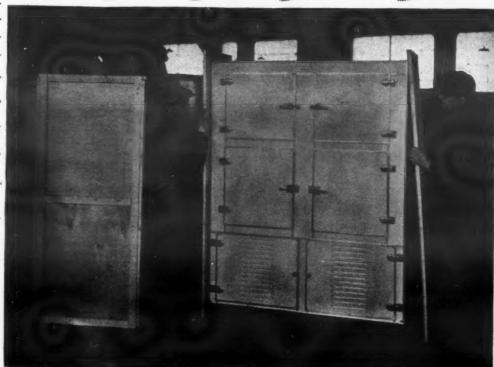
IMPORTANCE OF INSULATION

A comparison of a good refrigerator, properly insulated, with a thirty dollar box having the usual insulation has proven in fests that the cheap box uses about fifty per cent more ice than the one with proper insulation and also that temperatures within the food compartment are seventeen per cent higher, according to a report in the July *Delineator* entitled, "Be generous with your Refrigerator."

Photographs of the ice remaining in the ice chamber after twenty-four hours in an eighty degree Fahrenheit room indicated the affectiveness of good insulation. The box that was poorly insulated melted 6.2 pounds of ice per cubic foot while the refrigerator with good insulation melted only 4.06 pounds, or 34.5 per cent less ice.









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Modern Enameling Plant Methods Result in High Production

Trip Through Plant Reveals Utmost Care Exercised in Preparation and Treatment of Materials

THE finishing of metal, as an art, is many hundreds of years old I and was practiced originally in the Orient, but the enterprise and inventiveness of modern civilization has placed metal finishing also on an industrial basis. This came about largely by reason of the necessity for supplying enameled or japanned metal parts used in automobiles, electric refrigeration equipment, furniture, typewriters, adding

machines and a thousand and one articles of daily use, all of which are produced on burn-off oven it is wiped with a tack rag,

Thus the importance of metal finishing in the automotive and electric refrigeration industries led to the establishment in Detroit of the Wolverine Enameling Co., operating what is said to be the largest and most up-to-date plant of its kind in the world. The plant is devoted exclusively to enameling or japanning over Parkerized metal.

The entire plant, with a floor space of approximately 65,000 square feet, is laid out to expedite the flow of production, eliminating lost motion or back-haul. Material put in the production line passes rapidly from process to process until it is turned out in complete form.

Fine Finish Requires Clean Material

Owing to the nature of the work, preliminary conditioning of material must eliminate all existing faults or flaws. Material arriving at the dip tanks or spray booths must be free of oil, dirt and rust, and must be perfectly dry. Otherwise, for example, the fine finish to be observed on

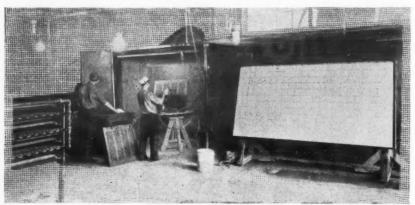
automobile fenders would be impossible. Material that has been previously coated

and is handled thereafter only with gloves. The coating liquid must be properly mixed initially, and when in use must be kept clean. Its viscosity must be maintained within close limits to assure good results. After application of the liquid to metal surfaces, those surfaces must be kept clear of atmospheric dust.

Storage tanks permit aging of the coating liquid before it is pumped into the dip tanks. Filters on the circulating lines keep the liquid free of dirt or other for-eign matter. A bi-hourly viscosity test is made in each dip tank with a McMichaels viscosity machine as a guide in adding material to keep down the viscosity that is constantly increased by the continued submergence in the dip tanks of heated metal The coating liquid is also pumped through a water-jacketed cooler and returned to the dip tanks, in order to keep down the temperature.

Thus it may be said that the coating liquid is at all times under complete control as to its clarity, viscosity and tempera-

The air supply of the department in



Applying Lacquer to Refrigerator Parts

nience in handling, small pieces are put in strap metal cages. After rinsing, this material, together with all root are filled up tanks are located is drawn through screen filters which remove all the dust. These air filters are cleaned at least once a week terial, goes into the pickle tank. Thereafter it is again rinsed, first in cold and then in warm water. Next it is dried on a hot table and wiped. When thoroughly dry, a light paraffin oil is sprayed on to protect it from rusting or staining in case of delay before proceeding to the next

New metal parts in good condition do not require the chemical treatment outlined above and enter the production line at this point. Both classes of material are next sent through the mechanical washer and the burn-off oven, which are operated in tandem

The Burn-Off Oven

The material moves forward on a woven The conveyor about 15 feet per minute. carries it past jets of boiling cleaner, and later past jets of hot rinse water. As it emerges from the washer, compressed air is employed to blow off adhering moisture. The 30-foot burn-off oven, through which the material next passes, is gas fired and operated at a temperature of 600 degrees The burn-off serves to volatilize any remaining moisture, oils or greases that remain after the washing operation.

This completes the conditioning of the When it is discharged from the

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CORRECT REFRIGERATORS. SEND FOR COMPLETE CATALOG The "Dry-Kold" Refrigerator Co.

NILES, MICHIGAN

The Effect of Baking

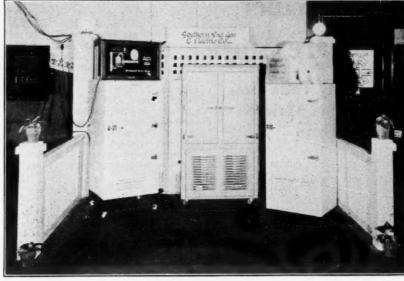
After the coating has been applied, the next step is baking. The function of this operation is to volatilize the lighter oils in the coating liquid, and subsequently to oxidize the heavier oils, leaving a hard, tough film of the mineral base adhering firmly to the metal surfaces. The temperatures in the ovens must be high enough to attain complete volatilization and oxidation, but not high enough to burn the mineral base or the oils. Further, the ovens must be ventilated properly to carry away the volatiles as produced, at the same time diluting them sufficiently to minimize danger of explosion.

The baking oven equipment of the Wolverine Enameling Co. includes four ovens of the intermittent conveyor type, disposed in a single bank on the second floor of the plant, and two main baking units of the 'A" type, set in tandem on the first floor for first and second coat work.

The smaller ovens are each 20 feet long and nine feet wide. All are electrically heated, with a total connected load of 554 Kw. Each oven is equipped with a Bristol recording thermometer and automatic tem- reduces the amount of electric heat reperature control. Baking temperatures range from 320 degrees to 480 degrees F. The period of bake is one hour. Capacity in the elimination of condensation within of the ovens depends on the bulk of the the ovens, and bringing about the best ob-

THE LATEST ACHIEVEMENT IN "DRY-KOLD" REFRIGERATORS

Home Builders See Operating Cycle of "The Heat That Freezes"



At an exhibition of Servel and Electrolux machines by the Southern Indiana Gas & Electric Co. at a Home Complete Show in Evansville, Ind., the operation of the Electrolux gas fired machine was made clear by an action sign. Colored lights indicated the application of heat in the form of gas and its removal from the food compartment.

individual pieces being baked, but in terms tainable baking conditions with the greatof complete sets of auto parts, the figure est degree of safety. would be about 750 per day of 24 hours.

All Parts Hand-Dipped

All parts baked in these ovens are handdipped and loaded on the conveyor by the same means. In the case of instrument boards, for example, and hand-grained interior trim, the dip tank is replaced by the spraying booth and graining table, which are located in the vicinity of the ovens.

baking installation, including ovens, dip tanks, loading and unloading spaces, is a little more than 200 feet. The steel dip tanks each have a capacity of 5,000 gallons and are set in pits, the top of the tanks being flush with the floor.

The interior section of these ovens is eight feet and four inches high, and nine feet and 10 inches wide, except at the peak, where the height is somewhat in-The total volume of the ovens is 14,000 cubic feet.

Both ovens are served by one continuous Link Belt conveyor, eight feet and four inches wide, made up of a roller chain on either side with pipes spaced on 15-inch centers between. The load is suspended on these pipes. The speed of the conveyor is customarily maintained at 16 inches per

Oven Temperatures Maintained by Two Circuits

These ovens, like the intermittent conveyor ovens, are electrically heated, with a connected load of 300 Kw. on two 440volt, 60-cycle, three phase circuits, direct from a bank of transformers installed close to the second coat oven. One of the circuits referred to is a constant heat circuit. while the other is automatically controlled on a temperature basis. The electrical heating units are located near the top of each oven.

Oven temperatures are checked periodically by means of a Leeds potentiometer, the temperatures ranging at various points in the ovens from 100 degrees to 450 degrees F. At the point of emergence from the ovens the temperature approximates 90 degrees F., so that the material is cool enough to handle without discomfort.

In order that air entering the baking ovens may be closely controlled as to temperature and purity, the air is supplied by nower driven fans, which send it over steam coils and then through reed filters. The air enters the oven room under pressure at three different points. A special arrangement of ventilating ducts in the ovens directs the air flow inside the ovens counterwise to the movement of the material. This permits an interchange of heat between the air and the material and It also reduces the volume of smoke and fumes in the ovens, resulting

Precaution Against Fire

In view of the inflammable nature of the liquids used, and their resulting vapors, every precaution is taken against fire. All buildings are of concrete and steel. Interior illumination is by nitrogen lamps with safety globes. Fire doors are judic-iously placed. The entire plant is protected by a Foamite system, actuated by fusible The overall length of the "A" type main links. A fire in the neighborhood of the dip tanks would automatically empty them into underground reservoirs. In addition, Foamite fire engines are kept available at all times for instant use.

> The company maintains a fleet of specially designed trailers for local deliveries, and a warehouse and trackage for railroad shipments. Local deliveries are made by the company in the special trailers because of danger of marred product with ordinary delivery methods. Special racks hold the finished parts in transit. On arrival at its destination the rack is moved directly to the production line where the parts are

> Throughout the entire progress of material in the Wolverine plant a careful system of inspection is maintained, so that rejections from all causes constitute a very small percentage of the total production.

At peak production the Wolverine plant turns out, in terms of sets of motor car sheet metal parts, enough for about 20,-000 cars per month. In terms of twocoat finished parts, the plant has an approximate daily capacity of 140 tons.

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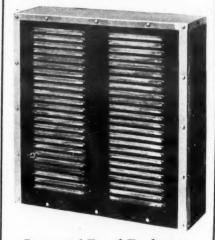


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The Preservation of Foods by Refrigeration

Why Foods Spoil—How Refrigeration Checks Bacterial Growth—Early Attempts at Refrigeration

By L. K. Wright,

Member American Society Refrigerating Engineers and National Association of Practical Refrigerating Engineers.

THE problem of preserving food collected during times of plenty for use when the source fails, has been practiced by man from even the remotest ages. Among primitive races food preservation was essential to avoid famine. In the modern civilized countries the preservation of food is an important factor in maintaining a balance between the demand and supply of perishable foods.

Chemical processes of animal and vegetable tissues actively continue in foods, scopic hosts, bacteria, which belong to even after the more obvious evidences of life have gone. Fruits ripen, grains mature, starches become sugars, flavors develop and meats become tender. changes are desirable and nutritively bene-The most important among the artificial methods employed to restrain the activity of these processes in food, is that of cooling or refrigeration. Other methods, such as by drying, dehydrating, smoking, pickling, curing, preserving and cooking, cause various changes which destroy the characteristics, palatability or nutritive values of foods.

Refrigeration is that method of food preservation which causes a minimum of alteration of the desirable food properties. The natural freshness and flavors are retained without abstracting moisture, and there is a minimum change in the physical chemical or nutritive qualities of the food.

When the word "refrigerate" is separated into its component portions and analyzed, it is found that the "frigid" part pertains to cold, while "re," meaning again, evolves the word into its elemental sense, that is, to make cold again.

Field of Refrigeration Combines Foun Types of Engineering

The field of refrigerating engineering is rather peculiar in that it combines civil, electrical, mechanical and chemical engineering; these professions contributing almost equally of data necessary for the design, installation and proper functioning of the refrigerating plant. All of this composite knowledge is utilized for one purpose, a purpose greater than just the "making of cold"—and that is to combat an innumerable host of invisible enemies. These enemies may be catalogued in three groups; molds, yeasts and bacteria.

Until the investigations of the French chemist, Louis Pasteur, the scientific world was at a loss to account for the spoilage of food. Through his investigations in the beer and vinegar making industries, Pasteur discovered the vegetable growths or yeasts, directly involved in the production of beers, wines and vinegars. Previous to Pasteur's discovery it was thought that the "mother" was responsible for the production of vinegar and that its function was that of a catalytic agent.

Molds and yeasts belong to the vegetable kingdom. These tiny plant-like growths assume two distinct forms; the molds growing in the form of nodules, each nodule growing to full size and sending off shoots that in turn develop into active nodules; while yeasts grow from a central nucleus and send out fine hair-like tentacles. The ends of these tentacles develop into centers and form additional plants which in turn send out tentacles.

Molds produce no change in food as hey merely derive their sustenance from he material upon which they grow; in which respect they may be likened to a fungus growth upon a tree. Not all molds are harmful, indeed some are desirble to impart flavor to such foods as cheese. The flavor is due directly to the mold itself and not to any chemical change. Remove the mold and the delectable moldy lavor has gone with it.

With yeasts, however, a different condition is brought about in that, in addiion to their growth, they bring about a chemical change in food, converting the ugars into alcohol. Most yeasts are desirable and are even used in medical precriptions.

Rate of Multiplication of Bacteria is Astonishing

More numerous than either molds or reasts, the visible enemies, are the micro-

FORGED BRASS VALVES for Mechanical Refrigeration Quality Shut-off and Cylinder valves in any standard designs or to your specifications. KEROTEST MANUFACTURING CO. 2525 LIBERTY AVENUE FITTSBURGH, PENNA

the animal kingdom. A bacterium, or "bug," is a single cell animal which, after attaining full size, divides into two; each half being an embryo animal. Being animals, these cells consume food and give off an offensive effluvia. Rotten fruit meat and vegetables are repulsive, because of these minute animals and their residue.

The rate of growth of these cells is astonishing. Under favorable conditions ar embryo cell will attain full size and divide into two cells in from 20 to 30 minutes. This rate of growth may not appear alarmingly rapid at first thought, but a few minutes with pencil and paper will disclose, that at the end of the second hour there will be 16 bacteria, and at the end of eight hours there will be 65,536 cells. In 15 hours more than a 1,000,000,-000 animalcula would be produced. To develop this number of cells would require a considerable quantity of food, so much that the rot produced or developed in the process would require 10 trucks, each of five-ton capacity, to haul it away.

If a bacteria count is made of one cubic centimeter of milk, which is about a tea-spoonful, it will be found that they number anywhere from 25,000 to 1,500,000. In the best milk obtainable there are at least 1,500 bacteria per cubic centimeter.

Warm, Moist Conditions Most Favorable to Bacteria

Bacteriologists have found that bacteria grow best under warm and moist condi-Warm, moist atmospheres promote growth, while cold dry conditions retard or inhibit growth. Air, if dry, will preserve food, even though the air be hot. But, if the dry air is cooled, the inhibitive action is greatly increased. Most authorities on food preservation agree that food kept below 50 degrees Fahrenheit, will undergo but slight decomposition, while at temperatures above that point, the multiplication of bacteria increases tremendously with each degree rise of heat.

A number of bacteria show great resistance against appreciable heat, even though high temperatures will kill most germs in a few seconds. The water content of bacteria seems to provide one of the factors offering diminished resistance, for if bacteria is dried it can be heated up to 300 degrees Fahrenheit for a short time and survive, while the wet bacteria, such as those occurring in milk and foods, die when the temperature approaches 110 degrees Fahrenheit.

Certain algae, which have been gradually acclimated, are found in hot springs at temperatures as high as 140 degrees Fahrenheit, while other thermophile bacteria can withstand a temperature of 212 degrees Fahrenheit (boiling point of water) for 10 hours without harm. The compara tive resistance of other animal life to high temperatures is interesting, when it is found that many cold blooded animals die when subjected to temperatures above 140 degrees Fahrenheit. Carps die when subjected to that temperature, while pike, trout and many sea fish expire at temperatures above 125 degrees Fahrenheit.

Resistance of Plant Life

As to plant life, some is highly resistant to high temperatures. It is said that sunflower seeds can be subjected to a temperature of 284 degrees Fahrenheit for fifteen minutes without destroying their ability to sprout. On the other hand a great many living organisms are less reistant and die, if but little temperature fluctuation occurs. This is illustrated by most tropical plants, especially orchids and other delicate growths, accustomed to the almost constant temperature due to the dank matres of jungle.

An interesting fact found by the refrigerating engineer is that plants, indigenous to cold climates, ove their resistance to low and even freezing temperatures, by virtue of a considerable amount of soluble salts in the san. The salts low r the freezing point of the sap and prevent freezing, and the consequent destruction of the plant, due to the expansion and disruption, which would otherwise oucur.

The resistance and ability of bacteria to survive extremely cold temperatures is astounding. A number of bacteria live after remaining in liquid air at a temperature of 310 degrees below zero Fahrenheit for 125 hours. One single bacteria, in the

liquid helium, which is 455 degrees below zero Fahrenheit.

Cold Checks Propagation of Bacteria

While bacteria may live in, or survive cold temperatures, they will not propagate in the chilled condition. Therefore cool-ing foods and so keeping the "bugs" sluggish or in a dormant condition, preserva-tion is accomplished. It was the suc-cessor of the famous Pasteur, Professor Elie Metchnikoff, working in the laboratories of the Pasteur Institute, Paris, who discovered that many of the human ills were due to bacterial activity in the in-testines. Bacteria, in the food, survive violent mastication and the action of stomach acids and juices.

Upon its arrival in the intestines it meets its most favorable conditions, that is, a warmth above ninety-eight and ideally moist, for propagation. This may end in a siege of illness if the person's physical condition is not strong enough to ward off this attack. So it is absolutely imperative that all food be clean, and kept so, before placing it in the refrigerated chambers, and once there, it be maintained under a strictly constant temperature prohibitive of growth and propagation of bacteria.

Cold Storage Investment

In the United States there are approximately 1,400 cold storage warehouses, having a combined storage capacity of 585,-000,000 cubic feet of space. These figures concern storage plants only and do not refer to ice plants or ice storage. These storage warehouses represent an investment of more than \$200,000,000. This huge amount is invested in one line of endeavor and that is to keep the bacteria dormant, stop propagation or further chance of contamination, and thus prevent the tainting of foods. Last year these warehouses handled more than 1,000,000 carloads of refrigerated freight.

The refrigerating engineer, with all his mechanical science, becomes therefore, a sort of bacteriologist, for his sole aim and endeavor is to keep the bacteria, molds and veasts quiet, and prevent their growth. Thus he makes possible and stands guard over the thickly populated centers, which produce little or no food. For instance Massachusetts produces but 15 per cent of the perishable food it consumes, the other 85 per cent being imported from other states, some of the foodstuffs comng thousands of miles.

California has such an abundance of produce that last year over 70,000 carloads of grapes and 75,000 carloads of oranges were shipped to other states. The Imperial Valley alone, in the months of June and July, shipped 20,000 carloads of canta-

Refrigeration by the Ancients

This is only an outline of some of the accomplishments of modern refrigeration. an art that has only blossomed and come into its own in the last forty years. It is only one of the ennumerable replacements, by twentieth century science of the crude methods of the ancients, outgrowing. through the centuries, of elemental refrigeration used by the old Egyptians, Greeks and Romans, who cooled their wines and water in crude clay vessels. whose porous nature, permitted the contents to be cooled, through the evaporation of a small part of the fluids from the surface of the jars. The development of refrigeration from these ancient days may be briefly traced through the following historical facts.

History records that the Emperor Nero had a vast number of slaves, whose duty it was to bring snow from the mountain tops, in order that the Emperor's wines might be served at the proper temperature for palatability. It is very evident that no idea of sanitation was observed, which may account for the prevalence of disease and plagues at that time, for the snow was compressed into icy masses at the mountain tops and conveved to the city in baskets of dried dung to diminish melting.

Alexander the Great Stored Snow

Alexander the Great had trenches dug and lined with straw for storing snow, in which he cooled hundreds of kegs of wine. As a result of the palatability, his phalanxes entering battle were in true fighting spirit and did not care much what became of hem, just so it was a good battle.

One of the early Greek poets, Simonides, gave vent to his spleen in poetic composition when he observed that notable guests of miracles.

dried state, withstood the temperature of at a banquet were treated to snow placed in their liquor, while he was obliged to sip of warm beverages.

Sir Walter Scott told how Saladin, leader of the Mohammedan forces, sent a frozen sherbet to Richard, the Lion Hearted, when he lay ill; much to the amazement of that doughty monarch.

Marco Polo, the great Italian navigator, brought the first recipes for water and milk ices from China and Japan, in the thirteenth century, showing that some form of refrigeration must have been practiced at that time in those countries.

In the sixteenth century, when Catherine d'Medici left Florence, Italy, to go to France, she took with her the best of chefs so that she would be certain of her supply of frozen creams and puddings.

Attempt by France at Governmental Ownership of Ice Trade

The Italians, Spaniards and Frenchmen have always been devotees of better living, and history is filled with interesting side lights on their uses for snow and ice in the preparation of food. In the seventeenth century France made an un-successful attempt at government ownership of the ice trade, when it licensed the business of farming ice and snow. The farmers who received government favor thereupon raised the prices with such studious regularity, that the people refused to buy and the government was obliged to relinquish its control of this commodity. Immediately afterward supplv and demand, regulated by consistent prices, got into stride and business settled to a sane plane.

Ice began to be sold in other countries and the next picture we have is of the English fishmonger selling ice from his

Dr. William Cullen, in 1775, invented the first machine for the production of It consisted of a pump which reduced the pressure upon a vessel of wateso that a portion of it, in evaporating. caused the remainder to be converted into

In 1802 the first delivery of ice to the home was made in America. A few years later, in 1805, the first shipment of ice was made from America, it being ex norted by Frederick Tudor, of Boston, to Matinique, in the West Indies, to help stay and alleviate the ravages of yellow

First Patent on Practical Process for Making Ice

In 1850, Dr. John Gorrie, of Apala chicola, Florida, took out the first American patent for a practical process of manufacturing ice. Fifteen years later, in 1865 the first transparent ice was made from distilled water, in the United States.

Until 1890, the practical utilization and commercial application of refrigeration was quite limited, and the development of the art seemed at a standstill, but in that year the greatest shortage of natural ice occurred, due to a warm winter, and the impetus started an industry, which has grown by leaps and bounds. Today re frigeration is no longer a luxury, it is a necessity.

Even in primitive countries the need and desire for cooled food and drink is shown by the use of ingenuous methods. Today, the natives of India, in the higher altitudes, fill shallow trays of porous material with water, place them in beds of straw and leave them exposed to the night winds. As a result of the cool atmosphere and of the evaporation due to the dry air dawn finds a thin film of ice formed upon the surface. History's pages disclose the fact that this was the method and identica' procedure used by the ancient Egyptians

The Mexicans, using a method passed down to them by the ancient Mayas and Aztecs, pour water into the center of the maguay plant in the evening, and morning finds crystal fingers of ice on the surface These slivers of ice are collected taker into a cellar or cave and placed in pots insulated with straw. The slivers form to a solid mass of ice which is cut into small cubes and sold in the streets.

In conclusion we ask, what is more impressive to the scientific mind, than this story of how, guided by the twin lights of science and invention. the primitive cooling process of the Egyptians, has developed through the ages into the refrigeration of Surely none of those ancients today? and only the recent moderns could have ever dreamed of them, except as a series

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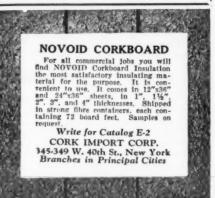
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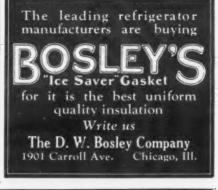
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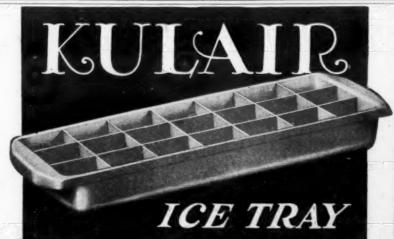




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